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11

12 **UNITED STATES DISTRICT COURT**  
13 **NORTHERN DISTRICT OF CALIFORNIA**  
14 **OAKLAND DIVISION**

15 JEFF YOUNG, individually and on behalf  
16 of all others similarly situated,

17 Plaintiff,

18 v.

19 CREE, Inc.,

20 Defendant.  
21  
22  
23  
24  
25  
26  
27  
28

Case No. 4:17-cv-06252-YGR

Hon. Yvonne Gonzalez Rogers

**DECLARATION OF STUART M.  
RICHTER IN SUPPORT OF  
DEFENDANT CREE INC.'S (1)  
OPPOSITION TO MOTION FOR  
CLASS CERTIFICATION AND (2)  
MOTION TO STRIKE REPORT AND  
EXCLUDE OPINIONS OF MR. STEFAN  
BOEDEKER**

Complaint Filed: October 27, 2017

Date: May 28, 2019

Time: 2:00 pm

Place: Courtroom 1 – 4<sup>th</sup> Floor

**Katten**

**Katten Muchin Rosenman LLP**

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Los Angeles, CA 90067-3012  
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**Declaration of Stuart M. Richter**

I, Stuart M. Richter, declare as follows:

1. I am an attorney licensed to practice in California and a partner of the law firm of Katten Muchin Rosenman LLP, counsel of record for defendant Cree, Inc. (“Defendant”).

2. Attached hereto as **Exhibit 1** is a true and correct copy of pertinent excerpts from the deposition of Stefan Boedeker, and the documents marked at his deposition as Exhibits 9 and 15.

3. Attached hereto as **Exhibit 2** is a true and correct copy of the errata sheet Stefan Boedeker prepared with respect to his deposition testimony.

4. Attached hereto as **Exhibit 3** is a comparison between the errata sheet Stefan Boedeker prepared with respect to his deposition testimony and the original testimony

5. Attached hereto as **Exhibit 4** is a true and correct copy of Plaintiff’s Answers to Defendant’s Interrogatories – Set One and referenced photos.

6. Attached hereto as **Exhibit 5** is a true and correct copy of pertinent excerpts from the deposition of Jeff Young.

7. Attached hereto as **Exhibit 6** is the expert report of Jesse David.

8. Attached hereto as **Exhibit 7** is the expert report of Joel Steckel.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and was executed at Los Angeles, California on March 22, 2019.

/s/ Stuart M. Richter

Stuart M. Richter

**Katten**

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# **EXHIBIT 1**

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
OAKLAND DIVISION

JEFF YOUNG, individually and on )  
behalf of all others similarly )  
situated, )  
 )  
Plaintiff, )  
 ) Case No.  
vs. ) 4:17-cv-06252-YGR  
 ) Volume I  
CREE, Inc., )  
 ) Pages 1 to 216  
Defendant. )  
\_\_\_\_\_ )

VIDEOTAPED DEPOSITION OF STEFAN BOEDEKER

Los Angeles, California

Tuesday, March 12, 2019

Reported by:  
ELIZABETH BORRELLI, CSR No. 7844, CCRR, CLR  
JOB NO. 157285

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Videotaped Deposition of STEFAN BOEDEKER,  
Volume I, taken on behalf of the Defendant, at  
2029 Century Park East, Suite 2600, Los  
Angeles, California 90067-3012, commencing at  
9:40 a.m., Tuesday, March 12, 2019, before  
Elizabeth Borrelli, a Certified Shorthand  
Reporter in the State of California, License  
No. 7844.

\* \* \*

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17  
18 Also Present:

19 JULIAN ABALOS, Videographer

20 MELISSA GARRETT, Cree in-house counsel

21 JESS DAVID, Edgeworth Economics

22 RENE BEFURT, The Analysis Group

## I N D E X

## WITNESS EXAMINATION

STEFAN BOEDEKER

By MS. LINDAHL 8

By MR. WOODS 211

## EXHIBITS

## BOEDEKER PAGE

Exhibit 1 Defendant Cree, Inc.'s Notice of Deposition of Plaintiff's Expert Stefan Boedeker, 3 pages 7

Exhibit 2 CV of Stefan Boedeker, 18 pages 11

Exhibit 3 Document titled "Expert Report of Stefan Boedeker in Support of Plaintiff's Motion for Class Certification," 84 pages 30

Exhibit 4 Engagement letter from Levin Sedrin & Berman to Berkeley Research Group, 5 pages 31

Exhibit 5 January 15, 2019 invoice from Berkeley Research Group, 3 pages 35

Exhibit 6 Document titled "List of Documents Considered," 5 pages 45

Exhibit 7 Amended Class Action Complaint, 27 pages 54

Exhibit 8 Spreadsheet of lightbulb pricing and information, 2 pages 55

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10	Exhibit 15	Document titled "Light Bulbs Survey," 13 pages	143
11			
12			

## INFORMATION REQUESTED

(None)

## UNANSWERED QUESTIONS

(None)

1 -- you probably have the number in front of you. I  
2 don't --

3 Q. 31?

4 A. Yeah, 31, the Dial case, yes.

5 Q. Okay. And so was your testimony accepted  
6 by the Court as admissible in both of those matters?

7 A. Yes.

8 Q. Okay. Can you look with me, please, at  
9 the -- at page 1? You list -- on the left-hand  
10 side, you have a column where you list your  
11 education and professional associations.

12 A. Yeah.

13 Q. Do you see that?

14 A. That's correct.

15 Q. Is the column that describes your  
16 education, you have five bullet points there, is  
17 that accurate and complete?

18 A. Yes, like three degrees in Germany, then  
19 in United States, yeah, this is correct pretty much.

20 Q. In addition to the education that you list  
21 in the column with the heading "Education," do you  
22 have any specific training in conjoint analysis?

23 A. I mean, no -- no specific training as in  
24 academic classes or anything, so...

25 Q. How did you learn how to perform conjoint

1           And the question arose, yeah, how do we  
2 price these products? And that's where I first  
3 applied conjoint.

4 BY MS. LINDAHL:

5           Q. Have you taken or participated in any  
6 continuing education classes related to conjoint  
7 analysis?

8           A. No, I have not taken any additional  
9 classes outside the academic area.

10          Q. So you were -- you also list under the  
11 heading "Professional Associations," you have seven  
12 bullet points there.

13                 Are those bullet points complete and  
14 accurate?

15          A. I mean, they -- they should be -- I mean,  
16 these are the -- what I put down as relevant  
17 professional associations and they -- they should be  
18 accurate.

19          Q. Okay.

20          A. Just looking at the -- yeah, the Insights  
21 Association was the old Marketing Research  
22 Association so that's a -- a new name, but they  
23 should be.

24          Q. And you -- you've been at your current --  
25 your current employer is Berkeley Research Group,

1 correct?

2 A. Yes. I'm -- I'm like a shareholder there.

3 Q. And you've been there since 2010?

4 A. Yeah. I was one of the -- the first  
5 joining the company. It was founded in March 2010.

6 Q. Okay. I am going to hand you a document  
7 that we're going to mark as Exhibit 3.

8 (Whereupon Exhibit 3 was marked for  
9 identification.)

10 BY MS. LINDAHL:

11 Q. Have you had an opportunity to review the  
12 document that was marked as Exhibit 3?

13 A. I -- I flipped through. I was looking for  
14 the signature page, and so -- and then the cover  
15 page so it seems to be a copy of my -- my report  
16 that I issued here in January. It's a signed  
17 version. And I didn't flip through every single  
18 page, but it appears --

19 Q. But it appears --

20 A. It appears to be the -- the complete  
21 report.

22 Q. Okay. And you were retained by the  
23 plaintiff in this matter to give expert testimony  
24 related to damages; is that correct?

25 A. Yeah, it was my understanding the

1 retention was -- was not so much to -- to give  
2 testimony about specific damages. I was asked in  
3 the class certification process to develop a --  
4 introduce, develop, explain a methodology that could  
5 calculate damages and then perform an empirical  
6 study where I showed how that actually works  
7 concretely rather than just saying it can be done.  
8 So this is now my -- my report to this case -- or up  
9 to this point in this case. It contains all of  
10 these three aspects, right? I'm -- I'm talking  
11 about the economics behind the damages model. I'm  
12 explaining, introducing statistical techniques that  
13 enable the estimation of damages, and then I -- I  
14 used an actual conjoint study to show how it's  
15 actually concretely calculated.

16 Q. Okay.

17 THE REPORTER: Can we go off for a minute,  
18 please?

19 MS. LINDAHL: Yes, ma'am.

20 THE VIDEOGRAPHER: Going off the record at  
21 10:10 a.m.

22 (Recess.)

23 (Whereupon Exhibit 4 was marked for  
24 identification.)

25 THE VIDEOGRAPHER: Back on the record at

1 Q. Okay. So looking back at Exhibit 6, the  
2 list of documents considered, do you believe that  
3 list of documents considered to be complete and  
4 accurate?

5 A. I mean, right now, without going through  
6 every single line item, I mean, this is -- I mean,  
7 it's all the calculations themselves. There is the  
8 admin file and then there's a lot of articles,  
9 references to statistics and econometrics books, and  
10 then there is pleadings and other documents. I  
11 mean, right now as I'm sitting here, I would  
12 probably say yes, it is -- it is probably -- plus  
13 what is in the footnotes are not included here, that  
14 should be all that I considered for this report.

15 Q. Okay. What is your understanding of the  
16 allegations that the plaintiff is making against  
17 Cree on behalf of the potential class?

18 A. In very simple terms is that the product  
19 was marketed as what I will call under the general  
20 umbrella of having the longevity property  
21 characteristic when, in fact, it doesn't.

22 Q. How did you obtain that understanding of  
23 the allegations that the plaintiff is making against  
24 Cree on behalf of the class?

25 A. That was through reading the complaint but

1 is, and I don't know if it's a printing issue. The  
2 electronic copy should show it, so maybe the column  
3 was not formatted with the full width and it cut it  
4 out.

5 Q. And did you previously testify that in  
6 connection with some of the internet research that  
7 either you or our team did to determine the price of  
8 the lightbulbs that you also viewed some packaging?

9 A. Yeah. I mean, a lot of these things on  
10 the website did have images of the products, so --  
11 but, again, that was -- I was maybe standing next to  
12 the terminal where one of the staff was doing the  
13 work and I looked at some of that, but nothing that  
14 I would have printed out or put in my report.

15 Q. Okay. Or taken any notes on?

16 A. No, I did not take any notes on that.

17 Q. Did you personally do any industry  
18 research in connection with preparing your expert  
19 report in this matter?

20 MR. WOODS: Object to form.

21 You can answer.

22 THE WITNESS: I did not do personally any  
23 industry research for this report.

24 BY MS. LINDAHL:

25 Q. Did you receive, either from your team or

1 of years or hours, and it's the comparison and the  
2 long-term warranty. Those are three claims that  
3 best reflected the longevity.

4 Q. Part of your definition of "longevity  
5 claims" includes a representation, as stated by you,  
6 that "Defendant's LED bulbs will last up to three  
7 times as long as the cheap LED bulbs."

8 Do you see that?

9 A. Yes.

10 Q. What is a cheap LED bulb?

11 MR. WOODS: Objection. Beyond the scope.  
12 Beyond the scope.

13 You can answer.

14 MS. LINDAHL: They're his words.

15 THE WITNESS: Yeah, I'm just looking at  
16 it. There's some quotation marks or that is  
17 something that -- it says, "up to three times as  
18 long," and unfortunately, there's no footnote, but  
19 that's not something I made up, so it's something  
20 that I probably -- either it's in the motion or in  
21 the -- in the -- in the complaint itself.

22 BY MS. LINDAHL:

23 Q. The phrase "cheap LED bulbs" is included  
24 in one of the attributes that you included in your  
25 conjoint study, correct?

1           A.    I do remember that I had it six times. I  
2   have to see if I use the same terminology there, but  
3   it could -- it's possible.

4           Q.    Okay.

5           A.    I mean, right now, I would have to look at  
6   the exact wording of that attribute.

7           Q.    Okay. But sitting here today, can you  
8   tell me what "cheap LED bulbs" means in the context  
9   of your conjoint study?

10          A.    In the context of the conjoint study, it  
11   is a terminations that refers to a lower price  
12   without quantifying the lower price. And if my --  
13   my thinking is right, that since this is in  
14   quotation marks, I just don't know where exactly  
15   this phrase is coming from, then it's something when  
16   a consumer sees that, it's up to the consumer to  
17   decide. So it basically mirrors, more or less, a  
18   purchase decision whether some unspecified --  
19   quantitatively unspecified information but the  
20   consumer reacts to it, right? I mean, if  
21   somebody -- for somebody who has a low budget, \$4  
22   may be expensive and \$1 is cheap. For somebody who  
23   pays \$15, anything under \$5 may be cheap. So  
24   that -- that's not really a specified definition  
25   that I'm using here.

1 Q. Okay. Are you -- as part of your  
2 preparation of this report, did you do any research  
3 or review any information related to the specific  
4 types of testing that consumer LED bulbs must pass  
5 to become Energy Star qualified?

6 A. I did not review any -- any quality  
7 control or other tests about the premarket launch of  
8 LED lightbulbs. I did not do that.

9 Q. Do you know or did you review in  
10 connection with preparing your -- your report, have  
11 you seen any packaging of an LED bulb, Cree or  
12 otherwise, that uses the phrase "cheap LED bulbs"?

13 A. Right now, I don't recall. I mean, I've  
14 looked at a few on -- on the website and I have the  
15 -- the images here, but I don't recall that I  
16 actually read the "cheap LED lightbulbs" in there on  
17 those specific examples.

18 Q. Okay. Are you able to -- if you look at  
19 pages 4 and 5 of your report, are the photographs of  
20 that packaging large enough such that you can read  
21 all of the writing on them?

22 A. I brought my reading glasses.

23 Q. Good.

24 A. So it's very small, so I would be taking  
25 them out just in case. Font size .7 is really

1 outside my range right now.

2 Q. Are you able -- so you're -- so you're not  
3 able to read these packages?

4 A. I mean, right now if I put on my reading  
5 glasses, and dependent to what level you're --  
6 you're going down here, I may be able to read it. I  
7 may not be able to read it on the packaging  
8 photography.

9 Q. Were you ever provided larger images of  
10 these packages that were sufficiently large that you  
11 could read the representations on the package?

12 A. I -- I think these are the -- the images.  
13 I mean, the original size was probably the one in  
14 the -- in the complaint. On the website, you can  
15 zoom in, right, so that's -- electronic version an  
16 always better than scanned-in photography. But I  
17 never read the entirety of -- of the packaging  
18 itself because my -- my -- my task was not to --  
19 what do you call it -- like ad psychology. There's  
20 marketing psychologist that do ad perception, kind  
21 of like surveys and studies. That's not my  
22 expertise. I'm -- I'm kind of like data. I'm  
23 phrasing attributes and levels of attributes, and  
24 then I'm measuring consumer response to a change in  
25 those attributes. So reading every single word on

1 -- on these packages was not necessary for the --  
2 the work that I was retained for.

3 Q. Do you know which representations on the  
4 packaging including -- included in your expert  
5 report the plaintiff's alleged to be false?

6 MR. WOODS: Object to form.

7 THE WITNESS: Again, it was my  
8 understanding that the complaint was broad enough  
9 in -- in the longevity attributes, which I then  
10 summarized in whatever paragraph we just looked at  
11 on -- I forgot the page, but where I'm basically  
12 saying collectively, I will from now on call these  
13 claims longevity claims. And it is my understanding  
14 that the summary of these claims that I  
15 collectively, then, call longevity claims adequately  
16 reflect what's alleged in the complaint without  
17 tying it back to a particular plaintiff's or a  
18 particular class representative's experience.

19 BY MS. LINDAHL:

20 Q. Are you able to look at the images --  
21 sitting here today, regardless of what your  
22 assignment was, can you point to any specific  
23 representation on the images set forth in your  
24 expert report that the plaintiff's alleged to be  
25 false?

1           A.     I'll give you an example. Do you want me  
2 to look at page 4, for example or --

3           Q.     Sure. Any of the images that are included  
4 in your report that are on page 4 and 5.

5           A.     I'll have to put my glasses here.

6                     I mean, there's a warranty on page 4 at  
7 the -- the lower corner, not the lower corner, like  
8 in the middle on the right column, there is lifetime  
9 savings that obviously imply that this lasts longer  
10 than comparable. So those would be two examples of  
11 what I summarize collectively as longevity claims.

12          Q.     Okay. Your definition of "longevity  
13 claims," is that based on the plaintiff's allegation  
14 in the complaint or is it based on actual packaging  
15 that you reviewed?

16                     MR. WOODS: Asked and answered.

17                     You can answer.

18                     THE WITNESS: Yeah, it's -- it's based on  
19 allegations in the complaint, which is -- I mean,  
20 typically where -- where, as an expert, I -- I get  
21 some of my information. So I'm testing is there a  
22 consumer response if I change the attributes, right,  
23 that were alleged in the complaint. So that's kind  
24 of what -- what my task was. And, as I said, I'm  
25 not an ad perception psychologist so the other

1 aspects were not relevant to -- to what I was doing.

2 Is this a good point? I need to go to the  
3 restroom.

4 MS. LINDAHL: Oh, sure. Absolutely.

5 THE VIDEOGRAPHER: Okay. Going off the  
6 record at 11:04 a.m. This is the end of Media  
7 No. 1.

8 (Recess.)

9 THE VIDEOGRAPHER: Back on the record at  
10 11:14 a.m. starting Media No. 2.

11 BY MS. LINDAHL:

12 Q. Let's look back, please, at paragraph 9 of  
13 your expert report on page 3.

14 A. Okay.

15 Q. And included in your definition of  
16 "longevity claims" is the satisfaction guarantee.

17 You described the satisfaction guarantee  
18 warranty claims, correct?

19 A. Yeah, that was one of the specific ones  
20 that I tested.

21 Q. Can you describe what you mean by the  
22 phrase "the satisfaction guarantee warranty claims"?

23 A. The satisfaction guarantee, it -- when --  
24 that's the length of time that was specified with  
25 that. To me, it's also an indication of longevity

1 of the product.

2 Q. Do you know specifically what length of  
3 time the plaintiffs allege that the bulbs should  
4 have lasted related to that satisfaction guarantee  
5 warranty that you describe?

6 A. I -- I don't know and I don't need that  
7 for my study because I'm contrasting a product that  
8 has that claim versus doesn't have that claim, and  
9 that's what I'm calculating. So the specific  
10 experience of -- of a class representative or a  
11 named plaintiff does not flow into my analysis.

12 Q. In connection with preparing your report,  
13 did you review Cree's warranty on its consumer LED  
14 bulbs?

15 A. I did not review any specific documents  
16 regarding warranty. As I said, I tested a product  
17 that has that warranty versus one that doesn't have  
18 it and saw or tried to quantify if there's a  
19 difference in the price.

20 Q. Do you have an understanding of who  
21 comprises the class that the plaintiff is seeking to  
22 represent in this matter?

23 A. It is my understanding that it's a very  
24 broad class of consumers who -- who bought the  
25 products and overpaid because they -- they didn't

1 have the -- the longevity that the consumers thought  
2 they would get when they bought the lightbulb. But  
3 it's very specific. I know there's a  
4 California-specific component to it, but it's very  
5 broad in terms of the products that are included.

6 Q. Do you know the time period during which  
7 the purported class members purchased Cree bulbs?

8 A. Not off the top of my head, but it's  
9 somewhere in my report.

10 Q. Okay. Can -- do you want to take a minute  
11 and look for it?

12 A. If I can find it, yes.

13 Q. Sure.

14 A. As far as something I read in the  
15 complaint or the motion, because I just flipped  
16 through the pages in the report where it -- I would  
17 expect it to have cited it, but it's not in there.

18 Q. As part of your -- as part of preparing  
19 your report in this matter, did you do any research  
20 into the time period during which Cree has sold the  
21 consumer LED bulbs?

22 A. I didn't do any independent research. All  
23 I -- I had looked at was what's in the complaint.

24 Q. Do you know whether Cree has ever changed  
25 its warranty during the time period that it has sold

1 consumer LED bulbs?

2 A. I don't know about that, and I didn't look  
3 into it.

4 Q. And I believe you testified that you  
5 didn't review Cree's warranty.

6 Did you review the warranties of any LED  
7 -- consumer LED bulb manufacturers?

8 A. No.

9 Q. Do you have an understanding of what an  
10 industry standard warranty on a consumer LED bulb is  
11 today?

12 A. I do not.

13 Q. Do you have an understanding -- excuse me  
14 -- of what a standard warranty on a consumer LED  
15 bulb has been since -- between 2014 and today?

16 MR. WOODS: Object to form. Also, beyond  
17 the scope.

18 You can answer.

19 THE WITNESS: Again, that never was the  
20 scope of my analysis and I've not looked into that  
21 particular -- or to research that particular topic.

22 BY MS. LINDAHL:

23 Q. Does the phrase "standard warranty" have  
24 any meaning to you in the context of a consumer LED  
25 bulb?

1 MR. WOODS: Same objections. You can  
2 answer.

3 THE WITNESS: Can you repeat? What a  
4 standard...

5 MS. LINDAHL: Sure.

6 THE WITNESS: Standard warranty?

7 MS. LINDAHL: Standard warranty.

8 THE WITNESS: Oh, yeah. I just didn't  
9 hear the first word, yeah.

10 BY MS. LINDAHL:

11 Q. Do you have an understanding of what that  
12 phrase means in the context of a consumer LED bulb?

13 A. No.

14 MR. WOODS: Same objections.

15 THE WITNESS: I don't.

16 MR. WOODS: You can answer.

17 BY MS. LINDAHL:

18 Q. One of the documents -- actually, let me  
19 make -- let you do the work here.

20 MS. LINDAHL: What number are we on?

21 MR. WOODS: Is this 9?

22 THE REPORTER: This is 9.

23 MS. LINDAHL: Thank you.

24 (Whereupon Exhibit 9 was marked for  
25 identification.)

1 whatever the legal implications of that is, I didn't  
2 worry about that, but I know that it's a motion and  
3 certain aspects of that motion were denied. Other  
4 ones were granted.

5 Q. Did the contents of this order that's been  
6 marked as Exhibit 9 inform your expert opinions in  
7 any way?

8 A. It does not inform -- that's kind of,  
9 like, an unusual word that I don't really use in the  
10 context of my expert opinions. You can --

11 Q. How about affect?

12 A. Affect?

13 Q. How about affect?

14 A. No. This was -- the -- Counsel had told  
15 me that there's additional information in this  
16 motion that is not in the complaint, so I just read  
17 it for -- for factual background. And in my report,  
18 I feel like there's four or five paragraphs where  
19 I'm, like, paraphrasing it. It always starts with  
20 like, "It is my understanding that." So that's kind  
21 of what this was use for. This was not used to --  
22 to form any opinions or -- or affect any of my  
23 opinions. Because when I read this document, I  
24 hadn't formed my opinions because I hadn't done the  
25 analysis.

1 Q. Are there any facts contained in this  
2 document that affected your opinion in any way?

3 A. No. And actually, coincidentally, I'm  
4 opening page 10 and on line 7, that's where "up to  
5 the three times as long as cheap light" --  
6 "lightbulbs" is coming from. And earlier I said it  
7 was not in my report. There was no reference, but  
8 here, I found the reference, page 10, line 7, so  
9 this is where I took that from.

10 So besides this, getting little facts for  
11 my "It is my understanding section" of my report,  
12 this document didn't have any impact on the report  
13 itself.

14 Q. Okay. So -- and you're referring on page  
15 10 to the paragraph that -- that begins at line 5?

16 A. Let's see. I lost -- here it is.

17 Yes, "Here, plaintiffs challenge," and  
18 then in line 7, there's that exact quote, and I  
19 think it's associated -- or attributed to the  
20 website.

21 Q. Okay. And it's not attributed to the  
22 packaging, correct?

23 A. From what I'm reading here, that's all I  
24 know right now.

25 Q. And your -- your conjoint analysis relates

1 to the packaging and not the website, correct?

2 A. The conjoint analysis refers to product  
3 attributes that the -- the consumer reacts to. And  
4 I don't know whether I differentiated between  
5 website and -- and packaging, right? I basically  
6 introduced -- in the conjoint I introduced products  
7 with different attributes, changed the attributes,  
8 and had the -- the consumers, in this case, the  
9 participants, who are consumers who were in the  
10 market to buy the product make choices relative to  
11 price and product combinations. So it's really --  
12 it's not a study in what people perceive on a -- on  
13 a label or a package or on the website. It's really  
14 about showing a consumer attributes and then have  
15 them trade off relative to the price, which, then,  
16 is a reflection of their preferences.

17 Q. Have you ever seen a representation on  
18 Cree's website that compares its LED bulbs to cheap  
19 LED bulbs?

20 A. I -- I have not.

21 Q. Have you seen a representation on the  
22 website of any consumer LED bulb manufacturer that  
23 compares that manufacturer's bulbs to cheap LED  
24 bulbs?

25 A. I -- I don't recall ever having seen that.

1 back and forth to find the continuation of your  
2 particular survey.

3 So that's done before, and in that phase,  
4 in this particular case, I don't recall if I  
5 actually clicked through the, whatever, 15 or 20  
6 questions on the -- on the pretest, but someone on  
7 my staff is always doing that.

8 Q. Who actually drafted the pretest survey?  
9 Was it you?

10 A. The -- the overall questions, Andreas  
11 Groehn and I worked on that. And then once it's in  
12 a shape, discussed with the client and then it's  
13 being sent for the programming to the vendors.

14 Q. When did you draft it?

15 A. So Andreas worked on that -- Dr. Groehn  
16 worked on that in late December, and I literally  
17 went through the final probably, like, the day or so  
18 before it was rolled out.

19 Q. Okay. So if it was rolled out on  
20 January 2nd, you might have looked at it on  
21 January 1st?

22 A. Yes.

23 Q. Did anyone -- did Andreas or -- or anyone  
24 else in your office evaluate the draft survey for  
25 the purpose of understanding -- for the purpose of

1 sufficient for the purpose that I needed it for.

2 MS. LINDAHL: All right. We're going to  
3 hand you a document that will be marked as  
4 Exhibit 11.

5 (Whereupon Exhibit 11 was marked for  
6 identification.)

7 THE WITNESS: Okay.

8 BY MS. LINDAHL:

9 Q. Do you recognize this document?

10 A. It looks like an e-mail, which, at the  
11 moment, I don't know if I've ever seen this before.  
12 It's from May. I didn't know what from  
13 administrative group send on 6/22/2012, so I don't  
14 -- I don't recognize this document.

15 Q. And it has two -- two attachments,  
16 correct?

17 A. Two -- there is three pages here, my  
18 document I'm looking at.

19 Q. Right, there's two pages -- yeah,  
20 they're -- they're separate --

21 A. Three pages.

22 Q. -- attachments. Yes, three total pages --

23 A. Yeah.

24 Q. -- the cover e-mail and two attachments,  
25 correct?

1           A.    Oh, if you count the charts as attachment,  
2   yeah, okay, yeah, then there's -- this is three  
3   pages, okay.

4           Q.    Okay.  I think we're saying the same  
5   thing.

6           A.    Yes.

7           Q.    Do you see in -- under the heading of  
8   "High-level conclusions," do you see that -- on the  
9   first page on the cover e-mail, do you see that  
10   there are some words that are in a different color  
11   font?

12          A.    Yeah, the red font, I see that.

13          Q.    And are those attributes substantially the  
14   same as the attributes that BRG selected for its  
15   pretest survey?

16               MR. WOODS:  Objection.  The document  
17   speaks for itself.  Also, object to form.

18               THE WITNESS:  I mean, energy efficiencies.  
19   There are dimming.  We have dimming and dimming  
20   range, flickering, price value, appearance.  There's  
21   installation, lifetime, no wear, warm up.  I mean,  
22   some of them --

23               [Reporter requests clarification.]

24               THE WITNESS:  Obviously, no maintenance,  
25   warm up, on time, mercury, so there's overlap there.

1 Some of them are phrased a little differently, but  
2 by and large, this is a good degree of overlap  
3 between the categories.

4 MR. WOODS: Counsel, was -- I'm sorry to  
5 interrupt, was this produced in discovery?

6 MS. LINDAHL: It was, yes. We can -- we  
7 can give you a Bates label for it. I think, because  
8 we printed it in color, the Bates didn't --

9 MR. WOODS: Okay. That would be good.  
10 Just for the record, there is no Bates number on  
11 this so I can't tell whether it's been produced or  
12 not, but...

13 BY MS. LINDAHL:

14 Q. Is this document included in the list of  
15 documents that you state that you relied upon in  
16 preparing your expert report?

17 A. I mean, this document doesn't even have a  
18 title or anything. There's no Bates number so it's  
19 impossible for me to say. I have not seen this  
20 document so I don't know if we ever received it or  
21 not.

22 Q. Did you review any of the documents that  
23 Cree produced in discovery before -- while -- in  
24 connection with preparing the pretest survey?

25 A. I mean, I reviewed the pretest -- the

1 survey document, and most of the drafting, as I said  
2 earlier, was done by Dr. Groehn and whoever on -- of  
3 the support staff who had time in December. So from  
4 what I recall right now, I've not seen this  
5 document, and right off the top of my head, I  
6 couldn't list any other document that I looked at  
7 and reviewed before the pretest survey went out.

8 Q. Were there any people other than employees  
9 of BRG who participated in drafting the pretest  
10 survey before it went live to survey respondents?

11 A. There was discussions with Counsel about  
12 the pretest survey, but that was, from what I  
13 recall, the -- the extent to it was -- to which it  
14 was discussed.

15 Q. Do you -- the first paragraph of this  
16 e-mail starts with the -- the sentence, "I went  
17 through the feedback."

18 Do you see that?

19 A. Yes.

20 Q. Are you familiar -- do you see that  
21 there's five bullet points below that?

22 A. Yes.

23 Q. Are you familiar with any of the products  
24 that are listed in those bullet points?

25 A. I mean, the EcoSmart is something I do

1 January 18th, so -- but this seems to cover that  
2 time period.

3 Q. Okay. So this invoice covers the time  
4 period between the last bill and when your report  
5 was submitted, plus a little extra, correct?

6 A. What do you mean by "plus a little extra"?

7 Q. You have some --

8 A. This would be the --

9 Q. -- time entries --

10 A. Oh.

11 Q. -- on the 30th and 31st of January.

12 A. Let's see.

13 Oh, okay, yeah. That was probably was in  
14 relationship to a production request. I see that,  
15 yes.

16 Q. Okay. And if you turn with me, please, to  
17 page 3 of 4, the pretest survey was live for survey  
18 participants between January 2nd and January 6th,  
19 correct?

20 A. Yeah, I believe here, you -- it's in my  
21 report. January 2nd sounds about right for the  
22 start date. The 6th -- I mean, I would have to look  
23 at the report, but it sounds about right.

24 Q. Okay. Can you --

25 A. Since it --

1 Q. Can you go ahead and confirm?

2 A. Yes.

3 Yes. Paragraph 94 in Boedeker 3, page 35  
4 states January 2nd to January 6, 2019.

5 Q. And your first time entry on this bill is  
6 on January 5th, correct?

7 A. Let me find that real quick.

8 Yes.

9 Q. So you had not billed any time to this  
10 matter before the pretest survey went live?

11 A. Does not appear to be on this bill, that's  
12 correct.

13 Q. Is it typical for you to use the pretest  
14 survey results to help you draft the conjoint  
15 survey?

16 A. Overall, the pretest results identify  
17 product attributes that are important, and then the  
18 conjoint menus, obviously, I have to include  
19 attributes that are at the issue of the case, all  
20 right? So in this case, it would be one of the  
21 longevity claims. So therefore, I'm now looking for  
22 other attributes that are important to the consumers  
23 and then I'm kind of, like, wrapping what I'm really  
24 interested in into some other attributes that are  
25 typical, like relevance. I mean, price always has

1 that's just a standard to filter down the group to  
2 people who --

3 [Reporter requests clarification.]

4 THE WITNESS: To filter down the group of  
5 respondents to people who actually have had -- made  
6 the decision to buy the product and then purchased  
7 it.

8 BY MS. LINDAHL:

9 Q. Are there any other portions of your  
10 pretest survey that have questions or phrasing that  
11 is identical to questions or phrasing in documents  
12 that Cree produced in discovery?

13 MR. WOODS: Objection. Object to form.

14 THE WITNESS: I don't know because, I  
15 mean, these survey questions were -- were in the  
16 one -- as I said, the decision-making process is --  
17 is always a question in there. The other ones, I  
18 would have to -- to talk to staff. If they copied  
19 it from here or from some other source, I don't  
20 know.

21 BY MS. LINDAHL:

22 Q. Is it typical for your staff to copy  
23 survey questions from case-related discovery  
24 documents?

25 A. I mean, copy survey questions, I mean,

1           THE WITNESS: As I said, those are  
2 questions that, in other surveys, I've also used,  
3 questions that kind of like are not so much  
4 revealing to what this is about, but there would be  
5 questions that ultimately show that this -- this is,  
6 like, just like any other survey, right, where it's  
7 like a market research survey with -- with the --  
8 with the context of lightbulbs. Another thing is  
9 that sometimes to -- to check the awareness of -- of  
10 survey participants, I would throw in a question  
11 that has multiple choice answers, and one of them is  
12 a straight nonsense answer, right? And so that way  
13 you can see if people don't just, like, draw a line  
14 down or click always the same box, right? Those are  
15 typical and best practices in survey methodology to  
16 ensure that -- that reliable answers will be  
17 recorded.

18 BY MS. LINDAHL:

19           Q. Have you ever used the question "I'm  
20 always looking for new ideas to prove my home" in a  
21 pretest survey other than -- other than on this  
22 occasion?

23           A. On this one, I don't recall.

24           Q. What about a question about  
25 ecofriendliness, is that something that you

1 typically include in your pretest survey?

2 A. I -- I worked on a case about laminated  
3 flooring products where the allegations were that  
4 they had excessive levels of formaldehyde, and there  
5 was general questions about ecofriendliness and  
6 labels on products, stamps of approval that follow  
7 certain state guidelines. So that's one that I  
8 recall right off the top of my head where  
9 ecofriendliness was definitely part of the -- the  
10 survey.

11 Q. Okay.

12 MS. LINDAHL: Let's take just a very short  
13 break just to clean up the table.

14 MR. WOODS: Sure.

15 THE VIDEOGRAPHER: Okay. Going off the  
16 record at 1:51 p.m. This is end of Media No. 2.

17 (Recess.)

18 (Whereupon Exhibit 14 was marked for  
19 identification.)

20 THE VIDEOGRAPHER: Back on the record at  
21 2:04 p.m., the start of Media No. 3.

22 BY MS. LINDAHL:

23 Q. Okay. We are going to hand you a document  
24 that's been marked as Exhibit 14. Take as long as  
25 you need to review it, and my first question for you

1 demographics, that's correct.

2 Q. So each survey participant would see  
3 both -- each survey participant in the conjoint  
4 phase of the study would see both the demographic  
5 piece of this and then also a conjoint piece of it?

6 A. Yeah. Everybody who qualified due to the  
7 different filters -- if a 16 year old starts, they  
8 would filtered out. If somebody never brought the  
9 product, right, or was not part of the  
10 decision-making process, they would be filtered out,  
11 but whoever makes it to the conjoint portion would  
12 then be randomly assigned to the 60- or the 100-watt  
13 part of the conjoint study.

14 Q. Okay. And we're going to hand you a  
15 document that's been marked as Exhibit 15. I will  
16 try not to make you flip back and forth too much.

17 (Whereupon Exhibit 15 was marked for  
18 identification.)

19 BY MS. LINDAHL:

20 Q. Do you recognize this document?

21 A. That seems to be -- I haven't flipped  
22 through all the pages, but this seems to be the --  
23 what I called earlier the preprogramming version  
24 that has the survey questions but then also the --  
25 the actual conjoint menus, but this one doesn't show

1 the choice menus. It just shows the description of  
2 the attributes and then kind of like a blank matrix,  
3 but it shows all of the levels of the attributes in  
4 the conjoint.

5 Q. So would this -- I believe that when we  
6 were talking about the -- the pretest, you testified  
7 that you provided the script to your vendor to set  
8 up the online survey.

9 Is this the same type of document?

10 A. Yeah, yeah, no. You're using the word  
11 "script." I called it the preprogram --

12 [Reporter requests clarification.]

13 THE WITNESS: I said that Counsel called  
14 it "script," but I think I used the terminology  
15 "preprogramming survey."

16 This is like the -- the questions written  
17 down in survey format, in this case a Word document,  
18 and then that would be used -- and typically there  
19 would be a discussion going on once the vendor  
20 received this over the phone to make sure that they  
21 understood everything correctly. And then the  
22 screenshots are being produced after everything has  
23 been programmed and a dry run is -- is done on the  
24 survey itself -- the conjoint portion of the survey.

25 BY MS. LINDAHL:

1 Q. Okay. So this Exhibit 15 is sort of the  
2 formula or the recipe that the vendor would use to  
3 create these screenshots that are Exhibit 14; is  
4 that an accurate way to describe it?

5 A. Yeah, I mean, these are instructions,  
6 including questions, but then also these terminate  
7 what I call the instructions to the programmer. And  
8 then once this is literally written into computer  
9 code so that it gives an online snapshot -- not a  
10 snapshot, an online one by one, screen by screen  
11 image of this, then the screenshots themselves could  
12 be -- could be produced.

13 Q. Okay.

14 A. And I think the screenshots may actually  
15 have been -- I can't really tell from here right  
16 now, but sometimes you can just have a dry run  
17 through the survey or other times you can just print  
18 out what -- what an actual participant may have  
19 answered as an example. I don't know right now  
20 what -- what was produced here.

21 Q. We're still on this page, on -- and I'm  
22 sorry for --

23 A. Yeah.

24 Q. -- having you have two documents open at  
25 the same time, but we're still on the page --

1 want to go through the list here very quick.

2 I know lumen is not on there so then --  
3 then lumen was not part of -- of -- there was no  
4 reference to lumen that would have been -- would  
5 have required this definition. So, therefore,  
6 probably the -- the vendor, through phone  
7 conversations -- I mean, typically, one of my  
8 staff -- I was on some of the calls, but in the days  
9 of -- of the -- the programming, I mean, this is all  
10 discussed with the vendor on the day of the  
11 programming sometimes. So maybe there was no  
12 reference to lumen so it was unnecessary to have a  
13 definition for lumen in there anymore.

14 BY MS. LINDAHL:

15 Q. Okay. Can you look with me, please, page  
16 7 of Exhibit 15.

17 A. Okay. I'm there.

18 Q. I'm looking at the definition of  
19 "lifetime."

20 A. Okay.

21 Q. Who drafted that definition?

22 A. Let me just read through it.

23 I mean, I -- I finally read through it and  
24 I don't know who actually drafted it. I mean,  
25 Dr. Groehn with the attorneys, maybe. I don't know.

1 There's definitely -- this was given to me and I  
2 checked it, and, to me, it was sufficient to explain  
3 lifetime in the context of this survey.

4 Q. Do you know why energy costs -- or  
5 information about energy costs is included in the  
6 definition of "lifetime"?

7 A. I mean, there's a reference to energy, the  
8 Department of Energy, five times longer. I don't  
9 know. It just seemed to be an add-on here in the  
10 definition. I don't know why it was included.

11 Q. The -- the row above that includes  
12 information about warranty.

13 Do you see that?

14 A. Oh, the whole box above it, yeah, okay. I  
15 see that.

16 Q. And the column on the right describes  
17 three different warranties, correct?

18 A. Yes.

19 Q. Who drafted the language in that box?

20 A. I mean, that may have also come from --  
21 from discussions with Counsel or relative or maybe  
22 even from the complaint, so these are, like, three  
23 types of warranties that are offered as -- as levels  
24 of an attribute in -- in this case.

25 Q. What is meant by the phrase "100 percent

1 So that's really helping the consumer to see three  
2 different levels and then make a choice in a  
3 tradeoff with other product comparisons.

4 BY MS. LINDAHL:

5 Q. Can you look with me on page -- what page  
6 are you on? I'm on page --

7 A. I'm on 7 --

8 Q. 9.

9 A. -- right now.

10 Q. Okay. Let's look at 9.

11 A. 9, okay.

12 9, yep. Okay, I'm on 9.

13 Q. And just -- can you just explain for me  
14 what's -- what is included in this table that starts  
15 on page 9?

16 A. These are, again, the descriptions of --  
17 of the -- these are descriptions of -- of the  
18 attributes. Again, for, what it seems like in some  
19 instances, the 60- and 100-watt participant groups.

20 Q. So when we were looking at page 7, were we  
21 looking at the definitions that a survey respondent  
22 would see if they were to hover over a particular  
23 term while taking the survey?

24 A. Some on page 7, I would say page 9 and 10  
25 are (unintelligible).

1 [Reporter requests clarification.]

2 THE WITNESS: 9, 10 and 11 are the ones  
3 that actually have the values that correspond to  
4 what is on the hovering thing, so I don't know how  
5 the page 6 and 7 or whatever it was, or 7 got in  
6 there. The page 9 is -- is the expanded, edited  
7 version, which, then, is the one, just looking at  
8 the description for the warranty, for example, that  
9 is in the survey itself.

10 BY MS. LINDAHL:

11 Q. So would a -- would a survey respondent  
12 ever have seen the information that's in -- that is  
13 included in the table that starts on page 7?

14 A. The page -- or the table on page 7.

15 Q. Yeah.

16 A. Again, this is this presurvey --  
17 preprogramming survey is we're talking with the  
18 vendor about doing it. What it seems here is like  
19 at page 9 and 10 are the ones -- and when I say "the  
20 ones," are the attributes and their levels that are  
21 also in the conjoint so that's what -- what the  
22 participants saw. Again, split into the 60 -- 60-  
23 and 100-watt, the versions.

24 Q. Okay. So looking at page 9, the row that  
25 has the attributes and levels for warranty has a

1 little bit -- has a couple more words in it than the  
2 table on page 7?

3 A. Let me just compare.

4 I saw some changes, because here I see you  
5 have to pay for shipment, right? So that's  
6 definitely --

7 Q. Yeah.

8 A. -- different, yeah.

9 Q. And I'm not trying to be difficult. I'm  
10 just trying to understand what page 7 is.

11 A. Again, it looks like that page 7 is -- is  
12 from -- from an iteration before page 9 because page  
13 9 is actually the one that was, then, programmed and  
14 made it into the conjoint survey that participants,  
15 then, would see and then answer the questions in  
16 that one rather than page 7.

17 Q. Okay. So we can put page 7 aside. Let's  
18 just look at page 9.

19 Who drafted choices 1, 2, and 3 in the row  
20 called "Warranty"?

21 A. Again, that was, for lack of a better  
22 word, like a team effort, which I then signed off  
23 on, and I know we -- we had discussions with  
24 Counsel, right? We had discussions among the team,  
25 so this is probably like a -- a process that showed,

1 like, these are three levels that we want to  
2 include. I mean, ultimately, when -- when -- this  
3 language was some that I -- I signed off on to be  
4 included in the -- in the survey.

5 Q. Do you know whether level 1, 2, or 3 in  
6 the warranty row -- let me ask it differently, I'm  
7 sorry.

8 Do you know whether Cree has ever had a  
9 warranty for a consumer LED bulb that is consistent  
10 with levels one, two, or three in the warranty row  
11 between 2015 and 2019?

12 MR. WOODS: Object to form.

13 THE WITNESS: I'm not aware of -- I have  
14 not studied any warranties that Cree may or may not  
15 have had. Again, this is, like, in the conjoint  
16 menu having the warranty attribute with three  
17 different levels to see if consumers show -- if --  
18 if any of these levels has different impacts on  
19 consumer demand, right? That's what this is for.  
20 So this -- in the actual study, this could easily be  
21 replaced with -- with warranties that were out there  
22 in the market by Cree or any other retailer, but  
23 since I didn't do a separate warranty analysis or  
24 study, I used these three levels. This is -- so  
25 warranty is the attribute, and then on the right

1 side, the descriptions would be the levels that the  
2 consumer or participant ultimately sees in the  
3 conjoint study.

4 BY MS. LINDAHL:

5 Q. Do you see the next row down there's an  
6 attribute called "Lifetime"?

7 A. Yes.

8 Q. And then different choices for 60-watt and  
9 100-watt?

10 A. Yes.

11 Q. Who drafted the different choices for  
12 60-watt and 100-watt in the row called "Lifetime"?

13 A. That is the same, right? I mean, we had  
14 discussions with Counsel. We put down different  
15 variations. At the end here, we have an attribute  
16 with four levels, and then basically that's what was  
17 included in the survey, but who actually contributed  
18 what element of that, I don't recall. But, again,  
19 that was the -- the -- the result of a discussion.

20 Q. How were these levels selected -- let me  
21 ask differently.

22 Why were these specific levels selected?

23 A. Again, there -- there is -- the comparison  
24 here is like the -- the four years and then lifetime  
25 savings over incandescent bulbs, and then it goes

1 trend.

2 Q. So the four levels, do those represent  
3 different representations that an LED lighting  
4 manufacturer would make on its packaging or other  
5 marketing materials?

6 MR. WOODS: Object to form.

7 You can answer.

8 THE WITNESS: I mean, I -- I could imagine  
9 that those are -- without pointing to a particular  
10 package or marketing material but that those are  
11 kind of like items that can be put out. And, again,  
12 from just a few pictures we looked at earlier, I  
13 mean, the lifetime savings or -- or hours or years  
14 of -- of lifespan are on packages in general and are  
15 used, right, to basically indicate that products  
16 have the longevity attribute or characteristic. And  
17 here, I wanted to measure if specifying specific --  
18 or specifying the amount of time that the lifetime  
19 covers, if there's any correlation, right? You  
20 could say at some point, it may flatten out. At  
21 other points, it keeps on going. So I just wanted  
22 to have data points that enabled me to see if the  
23 actual lifetime plays a role. And this is really  
24 with respect to devalue a model --

25 [Reporter requests clarification.]

1           THE WITNESS: De -- it's with respect with  
2 the goal to devalue a model to show to the trier  
3 of fact that this is the model that can be used and  
4 it's flexible enough to model different input  
5 parameters. I mean, as I sit here right now, I  
6 don't know what the exact lifetime is of the  
7 products in question, but with this one, I -- I  
8 could now model a comparison if the lifetime  
9 increases or decreases, right? Will that have an  
10 impact on -- on the demand for those products? And  
11 the demand would be, you know, how much are people  
12 paying for a product like that. That was the reason  
13 to -- to include this attribute and choose  
14 particular levels.

15 BY MS. LINDAHL:

16           Q. So is this attribute seeking to measure  
17 how a consumer would value the difference in the  
18 actual lifetime of a bulb or a different  
19 representation to the consumer about the lifetime of  
20 the bulb?

21           MR. WOODS: Object to form.

22           You can answer.

23 BY MS. LINDAHL:

24           Q. Do you understand what I mean?

25           A. Not quite. I mean, I -- why don't you

**From:** Al Safarikas [/O=CREE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=ASAFARIKAS]  
**Sent:** 6/22/2012 2:59:00 PM  
**To:** Neal Hunter [/O=CREE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=NHunter]; Scott Schwab [/O=CREE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=Sschwab]; Gerry Negley [/O=CREE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=GNegley]; Mike Fallon [/O=CREE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MFallon]  
**CC:** Greg Merritt [/O=CREE/OU=RTP/cn=Recipients/cn=gmerritt]  
**Subject:** Consumer Feedback  
**Attachments:** LED Combined.xlsx; A Lamps Combined.xlsx; Downlights Combined (CR6 + CR4).xlsx

I went through the feedback on THD.com for

- EcoSmart 6 in downlight
- EcoSmart 4 in downlight
- Philips AmbientLED (60W) A19
- EcoSmart "Omni" (60W) A19
- EcoSmart "Sno-Cone" (40W) A19

and counted mentions for particular attributes/features.

First some caveats:

1. These are for "mentions", both positive and negative. The idea being to determine what consumers care about enough to mention in a review.
2. This is a highly biased sample. It contains only people who cared enough to write a review. Most have purchased but not all.

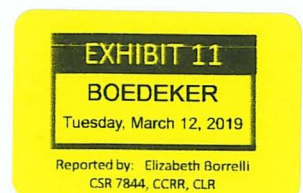
High level conclusions:

The attributes/features mentioned almost universally group into four (4) levels;

1. First and alone is "Color / Light Quality". Always the highest care-about. Some notes. It is clear by reading the context that most consumers do not differentiate in their feedback between light color (CCT) and light quality (CRI). This is not to say they can't see the difference. THEY CAN. They clearly do not know that there is a difference and as such can't express it. Also they tend to confuse color and brightness when they refer to high CCT products. They often refer to 5500K light a "bright" even when it is low lumen. I tried to interpret but in fairness the results for brightness are probably skewed upwards as a result.
2. Second group is. "Energy Efficient & Payback, Dimming, Price/Value, Appearance, Brightness", for both downlights and A-Lamps. For downlights add "Installation" and for A-lamps add "Dispersion/Directionality".
3. Third group is. "Lifetime / no Maintenance, Warm-up / On-Time", for both downlights and A-Lamps. A Look at the chart may indicate that "RFI/Buzz" should be in this category, but the EcoSmart "Sno-Cone" (40W) LSG A19 has serious problems with RFI and the results are skewed by people writing and complaining.
4. Fourth group is "Heat, Cold Temperature operation, Mercury / Toxic, Buzz / Sound/RFI, Warranty, Eco / Green". My surprise was about how low the concern or knowledge about toxic mercury presented. Mentions of "Eco/Gree" were about evenly split between people saying that this was a motivation for buying the product and people pointing out the hypocrisy of a product presenting itself as eco and packaged in so much board and plastic.

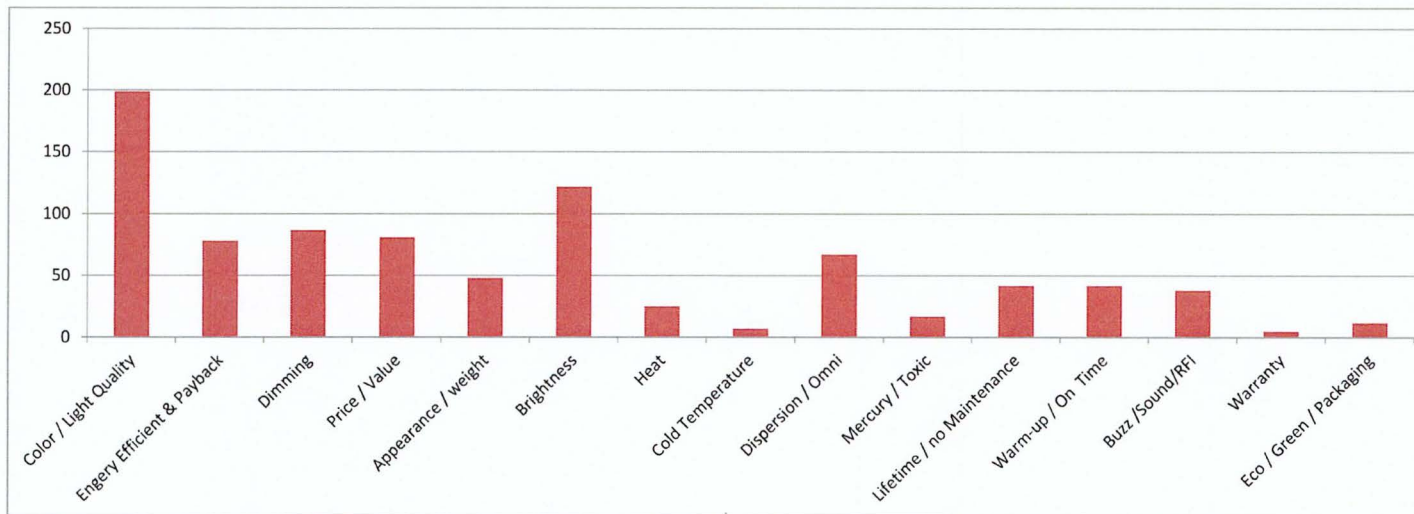
Lots of other commentary but I do not want to write book in this email. Call if you want to discuss. I put everything on the sharepoint site. This will be a nice secondary source to the consumer survey being conducted now.

--al



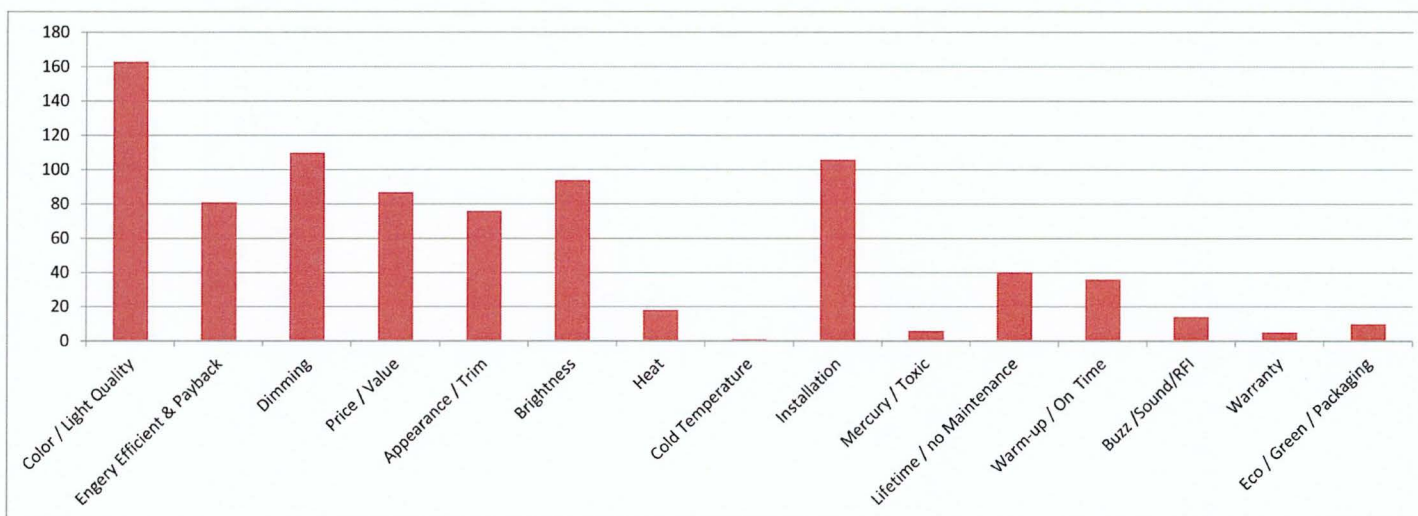
**A-Lamps**

A- Lamps Combined												
Color / Light Quality	Engery Efficient & Payback	Dimming	Price / Value	Appearance / weight	Brightness	Heat	Cold Temperature	Dispersion / Omni	Mercury / Toxic	Lifetime / no Maintenance	Warm-up / On Time	Buz
199	78	87	81	48	122	25	7	67	17	42	42	



## Downlights

Downlights Combined (CR6 + CR4)												
Color / Light Quality	Energy Efficient & Payback	Dimming	Price / Value	Appearance / Trim	Brightness	Heat	Cold Temperature	Installation	Mercury / Toxic	Lifetime / no Maintenance	Warm-up / On Time	Buzz
163	81	110	87	76	94	18	1	106	6	40	36	



**UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA**

**JEFF YOUNG,**

Plaintiff,

vs.

**CREE, INC.,**

Defendant.

CASE NO. 17-cv-06252-YGR

**ORDER RE: MOTION TO DISMISS**

Re: Dkt. Nos. 31, 32

United States District Court  
Northern District of California

Plaintiff Jeff Young brings this putative class action lawsuit against defendant Cree, Inc. (“Cree”) alleging that defendant engaged in an “unfair and deceptive practice of . . . promising consumers” that Cree’s light-emitting-diode bulbs (the “LED Bulbs”) “will last for particularly long periods of time up to 35,000 hours” with a “100% Satisfaction Guarantee” and “yearly energy cost savings ranging from around \$0.60 to \$2 per blub per year” in violation of California’s Unfair Competition Law (“UCL”), Cal. Bus. Prof. Code §§ 17200, *et seq.* (Count I); (False Advertising Law (“FAL”), Cal. Bus. Prof. Code §§ 17500, *et seq.* (Count II); Consumers Legal Remedies Act (“CLRA”), Cal. Civ. Code §§ 1750, *et seq.* (Count III);<sup>1</sup> fraudulent misrepresentation and concealment (Count V); negligent misrepresentation (Count VI); unjust enrichment (Count VII); breach of express and implied warranties (Count VIII);<sup>2</sup> and negligent failure to test (Count IX). (Dkt. No. 1, Class Action Compliant (“CAC”).)

<sup>1</sup> Plaintiff has withdrawn his claim for breach of the covenant of good faith and fair dealing (Count IV). (Dkt. No. 37, Opposition at 1.)

<sup>2</sup> Plaintiff’s complaint designates two separate causes of action as “Count VII,” namely claims for unjust enrichment and breach of express and implied warranties. In the interest of clarity, the Court has re-designated the breach of express and implied warranties claim as “Count VIII.”

**EXHIBIT 9****BOEDEKER**

Tuesday, March 12, 2019

Reported by: Elizabeth Borrelli  
CSR 7844, CCRR, CLR

1 Now before the Court is defendant's motion to dismiss.<sup>3</sup> (Dkt. No. 31, Motion to Dismiss  
2 ("MTD").) Having carefully considered the pleadings and fully-briefed motion, the hearing held  
3 on April 3, 2018, and for the reasons set forth below, the Court **GRANTS IN PART** and **DENIES IN**  
4 **PART** defendant's motion as described below.

5 **I. BACKGROUND**

6 As relevant here, the complaint alleges as follows:

7 Defendant Cree "advertise[s], market[s], distribute[s], or s[ells]" LED Bulbs "to consumers  
8 throughout the United States." (CAC ¶ 12.) "[O]n or around April of 2015" Young purchased  
9 three of defendant's LED Bulbs at Walmart and paid "approximately \$15-20 for each bulb." (*Id.* ¶  
10 32.) "Within months, all three [LED Bulbs] burned out even though [plaintiff] used them  
11 according to the instructions." (*Id.* ¶ 32.)

12 "Cree's packaging offers a '100% Satisfaction Guarantee' for LED Bulbs and an estimated  
13 lifetime of between 15–32 years depending on the product. The packages further offer an  
14 estimated yearly energy cost savings ranging from \$0.60 to \$2 per bulb per year. Cree packaging  
15 also offers a '10 Year Warranty.'" (*Id.* ¶¶ 3, 27.) Moreover, Cree's website "boast[s] . . . a 10  
16 year 100% satisfaction guarantee." (*Id.* ¶ 4.) Plaintiff alleges that these "marketing efforts are  
17 made in order to—and do in fact—induce its customers to purchase the LED bulbs at a premium  
18 because consumers believe the Lightbulbs will last for far longer than their actual life." (*Id.* ¶ 5.)  
19 Based thereon, plaintiff asserts "Cree's claims regarding the longevity of the LED Lightbulbs are  
20 false." (*Id.* ¶ 6.)

21 **II. LEGAL FRAMEWORK**

22 **A. Motion to Dismiss**

23 Pursuant to Rule 12(b)(6), a complaint may be dismissed for failure to state a claim upon  
24 which relief may be granted. Dismissal for failure to state a claim under Federal Rule of Civil

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25  
26 <sup>3</sup> Also before the Court is defendant's request for judicial notice of the front and back  
27 packaging for three types of Cree LED Blubs. (Dkt. No. 32.) In light of the lack of opposition,  
28 the Court **GRANTS** defendant's request for judicial notice, but does not accept the truth of any  
matters asserted in the documents. The Court gives such documents their proper evidentiary  
weight.

1 Procedure 12(b)(6) is proper if there is a “lack of a cognizable legal theory or the absence of  
2 sufficient facts alleged under a cognizable legal theory.” *Conservation Force v. Salazar*, 646 F.3d  
3 1240, 1242 (9th Cir. 2011) (citing *Balistreri v. Pacifica Police Dep’t*, 901 F.2d 696, 699 (9th Cir.  
4 1988)). The complaint must plead “enough facts to state a claim [for] relief that is plausible on its  
5 face.” *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 570 (2007). A claim is plausible on its face  
6 “when the plaintiff pleads factual content that allows the court to draw the reasonable inference  
7 that the defendant is liable for the misconduct alleged.” *Ashcroft v. Iqbal*, 556 U.S. 662, 678  
8 (2009). If the facts alleged do not support a reasonable inference of liability, stronger than a mere  
9 possibility, the claim must be dismissed. *Id.* at 678–79. Mere “conclusory allegations of law and  
10 unwarranted inferences are insufficient to defeat a motion to dismiss.” *Adams v. Johnson*, 355  
11 F.3d 1179, 1183 (9th Cir. 2004). In ruling on a motion to dismiss, “the court must presume all  
12 factual allegations of the complaint to be true and draw all reasonable inferences in favor of the  
13 nonmoving party.” *Knevelbaard Dairies v. Kraft Foods, Inc.*, 232 F.3d 979, 984 (9th Cir. 2000).

14 Additionally, claims sounding in fraud are subject to the heightened pleading requirements  
15 of Federal Rule of Civil Procedure 9(b). *Vess v. Ciba-Geigy Corp. USA*, 317 F.3d 1097, 1103–04  
16 (9th Cir. 2003). “In alleging fraud or mistake, a party must state with particularity the  
17 circumstances constituting fraud or mistake. Malice, intent, knowledge, and other conditions of a  
18 person’s mind may be alleged generally.” Fed. R. Civ. Proc. 9(b). “Averments of fraud must be  
19 accompanied by the who, what, when, where, and how of the misconduct charged.” *Kearns v.*  
20 *Ford Motor Co.*, 567 F.3d 1120, 1124 (9th Cir. 2009). These requirements “ensure that  
21 allegations of fraud are specific enough to give defendants notice of the particular misconduct  
22 which is alleged to constitute the fraud charged so that they can defend against the charge and not  
23 just deny that they have done anything wrong.” *Semegen v. Weidner*, 780 F.2d 727, 731 (9th Cir.  
24 1985).

### 25 B. Preemption

26 Preemption is fundamentally a question of congressional intent. *Wyeth v. Levine*, 555  
27 U.S. 555, 565 (2009). “Federal preemption occurs when: (1) Congress enacts a statute that  
28 explicitly pre-empts state law; (2) state law actually conflicts with federal law; or (3) federal law

occupies a legislative field to such an extent that it is reasonable to conclude that Congress left no room for state regulation in that field.” *Chae v. SLM Corp.*, 593 F.3d 936, 941 (9th Cir. 2010) (internal quotation marks and citations omitted).

While the Court’s interpretation of a preemption statute “must begin with its text,” that interpretation “does not occur in a contextual vacuum.” *Medtronic, Inc. v. Lohr*, 518 U.S. 470, 484–85 (1996); see *Altria Group, Inc. v. Good*, 555 U.S. 70, 76 (2008) (stating that, even “[i]f a federal law contains an express pre-emption clause, it does not immediately end the inquiry because the question of the substance and scope of Congress’ displacement of state law still remains.”). In analyzing the issue, a court must begin with the presumption that unless a “clear and manifest purpose of Congress” exists, federal acts should not supersede the historic police powers of the states. *Wyeth*, 555 U.S. at 565; *Lohr*, 518 U.S. at 485. “Parties seeking to invalidate a state law based on preemption ‘bear the considerable burden of overcoming the starting presumption that Congress does not intend to supplant state law.’” *Stengel v. Medtronic*, 704 F.3d 1224, 1227–28 (9th Cir. 2013) (*en banc*) (quoting *De Buono v. NYSA–ILA Med. & Clinical Servs. Fund*, 520 U.S. 806, 814 (1997)).

Preemption is express where Congress has considered the issue of preemption and included in the enacted legislation a provision explicitly addressing that issue. *Valentine v. NebuAd, Inc.*, 804 F. Supp. 2d 1022, 1028 (N.D. Cal. 2011) (citing *Cipollone v. Liggett Group*, 505 U.S. 504, 517 (1992)). In the absence of explicit preemptive language, congressional intent to preempt can be implied under two scenarios: field preemption and conflict preemption. First, field preemption occurs “where the scheme of federal regulation is ‘so pervasive as to make reasonable the inference that Congress left no room for the States to supplement it.’” *Valentine*, 804 F. Supp. 2d at 1028 (quoting *Gade v. Nat’l Solid Wastes Mgmt. Ass’n*, 505 U.S. 88, 98 (1992)). Field preemption should not be found in the absence of persuasive reasons—either that the nature of the regulated subject matter permits no other conclusion, or that, without question, Congress has so ordained. *Valentine*, 804 F. Supp. 2d at 1028–29 (such preemption arises in only extraordinary circumstances). Second, conflict preemption arises when “compliance with both federal and state regulations is a physical impossibility.” *Id.* (internal citations omitted).

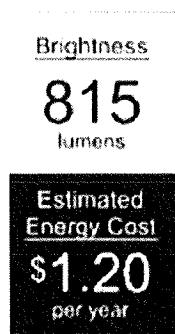
Conflict preemption may also exist where “state law ‘stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress.’” *Id.* (internal citations omitted). Showing preemption by impossibility is a “demanding defense.” *Wyeth*, 555 U.S. at 573.

### C. Energy Policy and Conservation Act

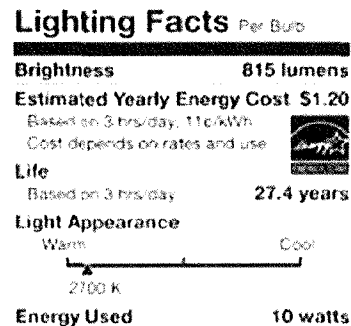
The Energy Policy and Conservation Act (the “EPCA”) establishes a national energy conservation program to reduce energy use in the United States by creating various requirements with regard to (i) energy efficiency, (ii) efficiency testing, (iii) operating costs, and (iv) labeling requirements. 42 U.S.C. §§ 6291-6309; *see also* S. Rep. No. 94-516, at 517 (1975), reprinted in 1975 U.S.C.C.A.N. 1956, 1957. Under the EPCA, LED bulb manufacturers must disclose certain information on their product packaging. 16 C.F.R. 305.15. The product’s “principal display panel” must include the LED bulb’s estimated annual energy cost, “expressed as ‘Estimated Energy Cost’ in dollars and based on usage of 3 hours per day and 11 cents (\$0.11) per kWh.” 16 C.F.R. 305.15(b)(1). The package’s “Lighting Facts” label must further include the estimated lifespan of each bulb. 16 C.F.R. 305.15(b)(3).

Illustrative examples of the required disclosures are depicted below:

#### Principal Display Panel



#### Lighting Facts Label



The EPCA provides that these required disclosures do not give rise to express or implied warranties. Specifically, Section 6297(g) of the EPCA provides:

//

//

//

Any disclosure with respect to *energy use, energy efficiency, or estimated annual operating cost which is required to be made* under the provisions of this part *shall not create an express or implied warranty under State or Federal law* that such energy efficiency will be achieved or that such energy use or estimated annual operating cost will not be exceeded under conditions of actual use.

42 U.S.C. § 6297(g) (emphasis supplied).

### III. DISCUSSION

Defendant argues that plaintiff's claims fail because the claims are (i) preempted by the EPCA and, in any event, (ii) not sufficiently pled. Defendant also claims that Young lacks standing to bring claims for alleged misrepresentations regarding certain types of LED Bulbs which he did not purchase.

#### A. EPCA Preemption

As an initial matter, the Court must determine whether plaintiff's claims are preempted by the EPCA. As noted, the EPCA states that "[a]ny disclosure with respect to energy use, energy efficiency, or estimated annual operating cost which is required to be made under the [EPCA] . . . shall not create an express or implied warranty under State or Federal law." 42 U.S.C. § 6297(g). Several district courts interpreting Section 6297(g) have held that the EPCA preempts both warranty and non-warranty claims which arise from defendant's "disclosure[s] with respect to energy use, energy efficiency, or estimated annual operating cost which [are] required to be made under the [EPCA]." *See Schwartz v. Vizio, Inc.*, 2017 WL 2335364, at \*4 (C.D. Cal. 2017) (citing 42 U.S.C. § 6297(g)); *Jurgensen v. Felix Storch, Inc.*, 2012 WL 2354247, at \*7 (S.D.N.Y. 2012). Stated differently, Section 6297(g) "expressly preempts all . . . claims [which] allege that [consumer products] did not perform as promised on a federally-required label." *Id.*

*Schwartz* is instructive. There, plaintiff brought warranty and non-warranty claims<sup>4</sup> alleging that defendant's representations regarding energy efficiency contained within a federally-

---

<sup>4</sup> Plaintiff's warranty claims included causes of action for breach of express warranty and implied warranty of merchantability. *Schwartz*, 2017 WL 2335364, at \*1.

Plaintiff's non-warranty claims included causes of action for violations of Illinois' Consumer Fraud and Deceptive Business Practices Act; Pennsylvania's Unfair Trade Practices and Consumer Protection Law; negligent misrepresentation; fraudulent concealment; intentional misrepresentation; fraud; and unjust enrichment. *Schwartz*, 2017 WL 2335364, at \*1.

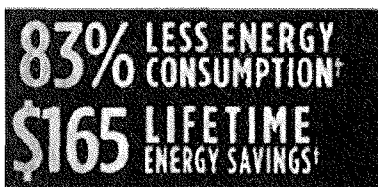
1 required energy label were misleading. *Id.* at \*1. In granting defendant's motion to dismiss, the  
2 *Schwartz* court held that plaintiff's warranty claims were preempted under the EPCA and the non-  
3 warranty claims were similarly preempted on the ground that the non-warranty claims were  
4 "simply . . . backdoor" attempts to recast "a breach of warranty claim." *Id.* at \*4 (internal  
5 quotations omitted); *see also Jurgensen*, 2012 WL 2354247, at \*1 (finding plaintiff's unjust  
6 enrichment claim preempted because it was merely a "backdoor" to a warranty claim); *Gee v.*  
7 *Viking Range Corp.*, WL 4416442, at \*2 (N.D. Miss. 2008) (non-warranty claims barred because  
8 the such claims were "inextricably intertwined with warranty claims which are barred by  
9 §6297(g)").

10 Here, plaintiff asserts his claims do not arise from statements which appear within the LED  
11 Bulbs' principal display panels or Lighting Facts labels but from representations which appear  
12 elsewhere on the product packaging or on the internet. (*See* Opposition at 6.) Upon review, the  
13 Court finds three categories of alleged misrepresentations, namely those which (i) reiterate  
14 disclosures required to be made on the product's principal display panel or Lighting Facts label;  
15 (ii) present information regarding *comparative* energy consumption, energy savings, and lifespan;  
16 and (iii) state that Cree's products are "100% Satisfaction Guaranteed." Examples of each  
17 category are depicted below.

18 **First Category**



23 **Second Category**



27 † At \$.011 per kWh when compared to 60W incandescent, 30,000 hour lifetime.  
28

1 **Third Category**



5 \* This product is guaranteed to give 100% performance satisfaction and is covered by a limited  
6 warranty. If within 5 years from the date of purchase you are not completely satisfied with the  
7 performance of this product, return the product to Cree . . . [and] Cree will send you a replacement  
or at Cree's option refund the original purchase price. Cree may require a purchase receipt.

8 **1. First Category: Reiterations of Federally-Required Disclosures**

9 Several courts have held that statements which merely reiterate the content of federally-  
10 required disclosures are preempted. *See Cooper v. United Vaccines, Inc.*, 117 F. Supp. 2d 864,  
11 871–872 (E.D. Wis. 2000) (adopting a “sensible and practical approach” which “focuses the  
12 preemption issue upon the content and language of the representation at issue” rather than the  
13 physical placement of the representation); *see also Kuiper v. American Cyanamid Co.*, 913 F.  
14 Supp. 1236, 1244 (E.D. Wis. 1996) (finding the reiteration of federally-required label information  
15 not actionable); *Kanter v. Warner–Lambert Co.*, 99 Cal. App. 4th 780, 797 (2002) (statements  
16 which are “simply alternative explanations” of those contained in federally mandated labels are  
17 preempted).

18 Here, plaintiff's claims are preempted to the extent that such claims arise from the first  
19 category of alleged misrepresentations, namely those statements which merely reiterate the  
20 information required to be disclosed on the LED Bulbs' principal display panel or Lighting Facts  
21 label pursuant to the EPCA.<sup>5</sup> Such statements include representations regarding the “estimated  
22

23 \_\_\_\_\_

24 <sup>5</sup> Plaintiff argues that the first category of representations goes beyond the federally-  
25 required disclosures and is not preempted because these representations omit or alter the  
26 information which appears in the Lighting Facts Panel. For example, the Lighting Facts Panel  
27 states that the lifespan of the LED Bulb is “27.4 years” based on “3 hrs/day” of use whereas the  
28 challenged representation states that the LED Bulb is “27+ years rated lifetime.” Plaintiff's  
argument fails in light of the fact that the federally-required disclosure and challenged  
representation both address the “estimated lifespan of the light bulb,” 16 C.F.R. § 305.15(c), and  
were displayed in close proximity on the LED Bulb's packaging.

lifespan of the light bulb.”<sup>6</sup> See 16 C.F.R. § 305.15(c), 16 C.F.R. § 305.2(w); (CAC ¶ 16).

Accordingly, defendant’s motion to dismiss is **GRANTED** to the extent that plaintiff’s claims arise from statements which simply reiterate federally-required disclosures.

## 2. Second Category: Comparative Performance

With regard the second category, and, by contrast to mere reiterations, statements which are “substantially different” from the federally-required disclosures are not preempted. *Cooper*, 117 F. Supp. 2d at 871–72; see also *Taylor AG Industries v. Pure–Gro*, 54 F.3d 555, 563 (9th Cir. 1995) (finding claims based on oral statements made by a distributor preempted because there was no evidence that the statements “were inconsistent with or went beyond the labels”). These include representations regarding energy consumption, lifetime energy savings, and lifespan as compared to competing products.

*In re Ford* is instructive. There, plaintiffs alleged that Ford made misleading comparisons between Ford’s Fusion cars and competing hybrid vehicles using figures derived from federally-mandated fuel efficiency disclosures. *In re Ford Fusion and C–Max Fuel Economy Litig.*, 2015 WL 7018369 at \*2–3 (S.D.N.Y. 2015). The court held that plaintiffs’ claims were preempted to the extent that such claims arose from Ford’s presentation of federally-mandated fuel efficiency estimates. *Id.* at \*27. However, the court also found that claims based on Ford’s representations which *compared* the fuel efficiency of Ford’s Fusion cars to that of Ford’s competitors were not preempted on the ground that such statements “go beyond merely reporting the EPA-estimated MPG.” *Id.* at \*26; see also *Yung Kim v. General Motors, LLC*, 99 F. Supp. 3d 1096, 1104 (C.D. Cal. 2015) (finding representations based on federally-mandated EPA estimates not preempted by the EPCA because the representations could lead reasonable consumers to believe the vehicles would be “able to achieve real-world mileage and tank range derived from those figures”). In denying defendant’s motion to dismiss, the court highlighted that plaintiffs’ consumer protection

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<sup>6</sup> To the extent that the complaint alleges misrepresentations which convey the LED Bulbs’ estimated lifespan in hours as opposed to years such statements are similarly preempted. See *Cooper*, 117 F. Supp. 2d at 871–72. The simple arithmetic conversation of years to hours does not change the content of the challenged representation.

claims “were not based on the disclosure of fuel economy or fuel operating costs, but rather [were] based on the more general duty not to deceive,” which Ford violated by “portraying a false impression about the ‘superior’ fuel economy of the [vehicles], beyond the mere disclosure of the EPA estimates.” *Id.* at \*24.

Here, plaintiff challenges several representations which tout the performance of Cree’s LED Bulbs *when compared to competing bulbs*, including representations on Cree’s website that its LED Bulbs will last “up to 3x as long as the cheap LED bulbs” and on the packaging which indicates that customers will save \$95-177 by using a Cree LED Bulb. (CAC ¶¶ 19–27.) Such statements “go beyond merely reporting the EPA-estimated” bulb lifespan and convey an allegedly “false impression about the superior” longevity and cost savings of Cree’s LED Bulbs. *In re Ford Fusion*, 2015 WL 7018369 at \*24 (internal quotations omitted). These representations give rise to a plausible inference that reasonable consumers would believe the Cree’s LED Bulbs are “able to achieve real-world” lifespan and cost savings. *See Yung Kim*, 99 F. Supp. 3d at 1104.

Accordingly, defendant’s motion to dismiss is **DENIED** to the extent that such claims challenge the second category of alleged misrepresentations, namely those that purport to compare the longevity, energy consumption, and cost savings of defendant’s LED Bulbs to competitors’ LED and incandescent bulbs.

### 3. Third Category: 100% Satisfaction Guaranteed

With regard to the third category, which includes representations that the LED Bulbs are “100% Guaranteed[,]” such representations are not preempted. Such representations are not required by EPCA and therefore fall outside the purview of Section 6297(g). *See In re Ford*, 2015 WL 7018369 at \*1 (holding “any allegations that go beyond the mere disclosure . . . [of information required by the statute], go beyond the scope of the EPCA”); *see also True v. Honda Motor Co.*, 520 F. Supp. 2d 1175, 1181 (C.D. Cal. 2007) (claims not preempted because the challenged representations were not within the scope of a federally-mandated disclosure).

#### B. Sufficiency of Allegations

Having determined that plaintiff’s claims are preempted only to the extent that such claims arise from the first category of representations, the Court now turns to whether plaintiff’s claims

1 arising from non-preempted representations are sufficiently pled as to each category of alleged  
2 misrepresentations.

3 **1. Second Category: Comparative Performance**

4 **a. Claims Sounding in Fraud: UCL, FAL, CLRA, and Fraudulent  
Misrepresentation and Concealment**

5 Plaintiff alleges four causes of action involving allegations sounding in fraud, namely  
6 claims under the UCL (Count I), FAL (Count II), and CLRA (Count III), and for fraudulent  
7 misrepresentation and concealment (Count V). All four claims require plaintiff to allege a false or  
8 misleading statement, scienter, intent, reasonable reliance, and damages. *See Bank of the West v.*  
9 *Valley Nat. Bank of Arizona*, 41 F.3d 471, 477 (9th Cir. 1994) (citing *Hackethal v. Nat Cas. Co.*,  
10 189 Cal. App. 3d 1102, 1111 (1987)). In a deceptive advertising case involving allegations of  
11 fraud, “Rule 9(b) requires that the plaintiff(s) identify specific advertisements and promotional  
12 materials; allege when the plaintiff(s) were exposed to the materials; and explain how such  
13 materials were false or misleading.” *Janney v. Mills*, 944 F. Supp. 2d 806, 818 (N.D. Cal. 2013).  
14 Defendant asserts that plaintiff fails to allege (i) Cree’s scienter and (ii) the circumstances  
15 surrounding the alleged fraud including Young’s reliance.

16 With respect to defendant’s first argument, plaintiff alleges that defendant “designed,  
17 formulated, tested, manufactured, inspected, distributed, marketed, supplied, and/or sold” the LED  
18 Bulbs at issue. (CAC ¶ 125.) According to plaintiff, Cree claims on its website that it “designs  
19 and tests its bulbs to last longer, with rated lifetimes equal to or exceeding Energy Star minimum  
20 requirements.” (*Id.* ¶ 26.) These allegations, particularly those related to testing, are sufficient to  
21 create a reasonable inference that Cree knew that the challenged representations were false. *See*  
22 *Kowalsky v. Hewlett-Packard Co.*, 2011 WL 3501714 (N.D. Cal. 2011) (finding plaintiff’s  
23 allegation that defendant tested its products sufficient to create a plausible inference that defendant  
24 had knowledge of a product defect); *Avedisian v. Mercedes-Benz USA, LLC*, 2013 WL 2285237,  
25 at \*7 (C.D. Cal. 2013) (same).

26 Turning to Cree’s second argument, plaintiff alleges that defendant knowingly made false  
27 representations and concealed material facts regarding the “quality, durability, longevity and  
28 benefits of [Cree’s] LED Lightbulbs.” (CAC ¶¶ 46–47, 48, 50, 57, 58, 66, 67, 70.) Plaintiff

identifies the specific advertisements and marketing materials which he claims are false and misleading. (*Id.* ¶¶ 15, 16, 17, 19, 20, 21, 23, 24, 25, 27.) Next, plaintiff alleges that he was exposed to the false representations when he purchased the LED Bulbs from Walmart in April of 2015. (*Id.* ¶ 32.) Further, he claims he would not have purchased the bulbs, or would not have paid as much for them, absent the alleged misrepresentations. (*Id.* ¶¶ 50, 60, 68, 90, 97, 122.) Plaintiff alleges that these representations are false and misleading because the LED Bulbs “do not last nearly as long as advertised. (*Id.* ¶ 6.) However, plaintiff fails to plead his reliance and does not identify the specific representations on which he relied.

Accordingly, defendant’s motion to dismiss is **GRANTED** with respect to plaintiff’s claims under the UCL (Count I), FAL (Count II), CLRA (Count III), and for fraudulent misrepresentation and concealment (Count V) with leave to amend to plead plaintiff’s reliance and identify the specific representations on which he relied.

#### **b. Negligence Claims**

Plaintiff alleges two causes of action for negligence, namely negligent misrepresentation (Count VI)<sup>7</sup> and negligence in design based on Cree’s failure to test its LED Bulbs adequately (Count IX). Defendant argues that both negligence claims are barred by the economic loss rule.

“The economic loss rule requires a purchaser to recover in contract for purely economic loss due to disappointed expectations, unless he can demonstrate harm above and beyond a broken contractual promise.” *Ladore v. Sony Comput. Entm’t Am.*, 75 F. Supp. 3d 1065, 1074 (N.D. Cal. 2014) (quoting *Tasion Communications v. Ubiquiti Networks, Inc.*, 2013 WL 4530470, at \*3 (N.D. Cal. 2013)). “[T]he economic loss rule has been applied to bar a plaintiff’s tort recovery of economic damages unless such damages are accompanied by some form of *physical harm* (i.e., personal injury or property damage).” *Id.* (emphasis in original) (citing *North Am. Chem. Co. v.*

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<sup>7</sup> “In California, the elements of negligent misrepresentation are ‘(1) a misrepresentation of a past or existing material fact, (2) made without reasonable ground for believing it to be true, (3) made with the intent to induce another’s reliance on the fact misrepresented, (4) justifiable reliance on the misrepresentation, and (5) resulting damage.’” *Yamauchi v. Cotterman*, 84 F. Supp. 3d 993, 1018 (N.D. Cal. 2015) (quoting *Ragland v. U.S. Bank Nat. Assn.*, 209 Cal. App. 4th 182, 196 (2012)).

1 *Superior Court*, 59 Cal. App. 4th 764, 777 (1997)). “Put more precisely, in actions arising from  
2 the sale or purchase of a defective product, plaintiffs seeking economic losses must be able to  
3 demonstrate that either physical damage to property (other than the defective product itself) or  
4 personal injury accompanied such losses; if they cannot, then they would be precluded from any  
5 tort recovery in strict liability or negligence.” *Id.* (quoting *North Am. Chem.*, 59 Cal. App. 4th at  
6 780). The economic loss rule “prevents the law of contract and the law of tort from dissolving  
7 into one another.” *Robinson Helicopter Co., v. Dana Corp.*, 34 Cal. 4th 979, 988 (2004).

8 Several California courts and federal courts in this district have recognized an exception to  
9 the economic loss rule. *See Robinson Helicopter*, 34 Cal. 4th at 989–93; *JMP Securities LLP, v.*  
10 *Altair Nanotechnologies Inc.*, 880 F. Supp. 2d 1029, 1043–44 (N.D. Cal. 2012). Specifically, a  
11 plaintiff seeking economic damages for a negligence claim “will [not] be barred by the economic  
12 loss rule [where] the plaintiff alleges that the defendant made an affirmative representation, and  
13 that the defendant’s representation exposed the plaintiff to independent personal liability.” *Crystal*  
14 *Springs Upland School v. Fieldturf USA, Inc.*, 219 F. Supp. 3d 962, 970 (N.D. Cal. 2016)  
15 (dismissing negligent misrepresentation claim because plaintiff did not allege exposure to  
16 independent personal liability); *see also Westport Ins. Corp. v. Vasquez, Estrada and Conway*  
17 *LLP*, 2016 WL 1394360, at \*5–7 (N.D. Cal. 2016) (claim for negligent misrepresentation barred  
18 under the economic loss rule because the alleged tortious conduct was not separate from the  
19 breach of contract); *Nada Pac. Corp. v. Power Eng.g & Mfg., Ltd.*, 73 F. Supp. 3d 1206, 1224–25  
20 (N.D. Cal. 2014) (same).<sup>8</sup>

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21  
22 <sup>8</sup> Defendant raises two additional arguments in its motion regarding plaintiff’s negligence  
23 actions. First, defendant argues that plaintiff cannot bring a claim for “negligence—failure to test”  
24 because it is not a valid cause of action in California. This argument is without merit. California  
25 courts have held that the “duty to test is a subpart of the other three duties [to safely manufacture,  
26 adequately design, and appropriately warn].” *Valentine v. Baxter Healthcare Corporation*, 68 Cal.  
27 App. 4th 1467, 1486 (1999); *see also Gordon v. Aztec Brewing Co.*, 33 Cal. 2d 514, 520 (1949)  
28 (finding “negligence in the defendant’s failure to test”); *Centeno v. Bayer HealthCare Pharm. Inc.*,  
2014 U.S. Dist. LEXIS 136234, at \*8-9 (S.D. Ill. 2014) (applying California law and denying  
dismissal of a negligence claim by finding that “failure to test” is a factual allegation supporting a  
claim that defendants were negligent and brings it “within the ambit of *Valentine*, which  
recognizes that testing and inspection duties may be tied to liability for manufacture, design, and  
failure to warn, even if they are not maintainable as an independent duty”).

1 Here, plaintiff does not allege that he suffered “physical harm” or that he was exposed to  
2 personal liability as a result of defendant’s alleged misrepresentations. Accordingly, defendant’s  
3 motion to dismiss plaintiff’s claims for negligent misrepresentation (Count VI) and negligent  
4 failure to test (Count IX) is **GRANTED** on the ground that such claims are barred by the economic  
5 loss rule. Plaintiff is granted leave to file an amended complaint which alleges, if possible, that he  
6 was exposed to “independent personal liability.”

7 **c. Unjust Enrichment**

8 Defendant argues that plaintiff’s cause of action for unjust enrichment (Count VII) should  
9 be dismissed because it is not a cause of action in California. Defendant’s argument fails as the  
10 California Supreme Court has clarified that unjust enrichment is a valid cause of action in  
11 California. *See Hartford Cas. Ins. Co. v. J.R. Mktg., L.L.C.*, 61 Cal. 4th 988, 1000 (2015)  
12 (clarifying California law and allowing an independent claim for unjust enrichment).

13 Accordingly, defendant’s motion to dismiss plaintiff’s claim for unjust enrichment is  
14 **DENIED.**

15 **d. Breach of Express and Implied Warranties**

16 Defendant argues plaintiff’s warranty claim (Count VIII) should be dismissed on two  
17 grounds. First, plaintiff fails to allege that he attempted to enforce the terms of the warranties at  
18 issue. Second, Young lacks contractual privity because he purchased the LED Bulbs from a non-  
19 party, namely Wal-Mart. The Court addresses each.

20 With respect to the first argument, Cree mischaracterizes plaintiff’s warranty claims. He  
21 does not allege that defendant breached the express warranties included on Cree’s product  
22 packaging. Rather, he alleges that Cree made representations concerning product life and energy  
23

24  
25  
26 Second, defendant argues that plaintiff fails to allege detrimental reliance with respect to  
27 the negligent misrepresentation claims. Defendant does not persuade. Plaintiff alleges that he  
28 relied on defendant’s representations regarding the quality and longevity of defendant’s LED  
Bulbs. (*See CAC ¶¶ 1, 5, 50, 59, 67, 68, 90, 96.*) In any event, an inference of reliance is  
appropriate where the alleged misrepresentations are material. *See Vasquez v. Superior Court*, 4  
Cal.3d 800, 814 (Cal. 1971).

savings which themselves give rise to express warranties regarding the same. (CAC ¶ 115).<sup>9</sup>

Turning to the second argument, “[u]nder California law, the general rule is that privity of contract is required in an action for breach of either express or implied warranty and that there is no privity between the original seller and a subsequent purchaser who is in no way a party to the original sale.” *In re Clorox Consumer Litig.*, 894 F. Supp. 2d 1224, 1236 (N.D. Cal. 2012) (internal quotation marks omitted) (citing *Burr v. Sherwin Williams Co.*, 42 Cal. 2d 682, 695 (Cal. 1954)). However, a “particularized exception[]” to the privity requirement exists as “when the plaintiff relies on written labels or advertisements of a manufacturer.” *Clemens v. DaimlerChrysler Corp.*, 534 F.3d 1017, 1023 (9th Cir. 2008) (citing *Burr*, 42 Cal. 2d 682, 696 (1954); *see also In re Ferrero Litig.* 794 F. Supp. 2d 1107, 1118 (S.D. Cal. 2011). Here, plaintiff alleges misrepresentations regarding defendant’s product packaging, written labels, and advertisements. (CAC ¶ 2.) Accordingly, privity of contract is not required. *See Clemens*, 534 F.3d at 1023. Defendant’s motion to dismiss plaintiff’s express and implied warranty claims (Count VIII) is **DENIED**.

## 2. Third Category: 100% Satisfaction Guaranteed

Plaintiff’s claims based on the third category of representations arise from allegations that defendant’s LED Bulbs “are sold with packaging which indicates . . . ‘100% Satisfaction Guaranteed.’” (CAC ¶ 15.) With respect to this category *Punian* illuminates. *See Punian v. Gillette Co.*, 2016 WL 1029607, at \*6–8 (N.D. Cal. 2016). There, plaintiffs alleged that defendant’s labels, which stated that Duralock Batteries were “GUARANTEED for 10 YEARS in storage[,]” were misleading because they did not disclose possible leakage from the batteries during that period. *Id.* at \*3, 6. Plaintiff brought numerous claims but in granting defendant’s motion to dismiss, the court found that “[i]n California the use of the term ‘guarantee’ generally creates an express warranty . . . [which] is not a representation that a product has no defects, but rather a promise to repair, replace or refund a failed product.” *Id.* (citing Cal. Civ. Code §

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<sup>9</sup> Pursuant to Cal. Com. Code § 2313(a), “[a]ny affirmation of fact or promise made by the seller to the buyer which relates to the goods becomes part of the basis of the bargain creates an express warranty that the goods shall conform to the affirmation or promise.”

1791.2(b); *Hoey v. Sony Elecs. Inc.*, 515 F. Supp. 2d 1099, 1104 (N.D. Cal. 2007)).

Similarly, the “100% Satisfaction Guarantee[]” at issue here “is not a representation that a product has no defects, but rather a promise to repair, replace or refund a failed product.” *Id.* Young does not allege that Cree failed to “repair, replace or refund a failed product.” *Id.* Thus, defendant’s motion to dismiss plaintiff’s claims based on the “100% Satisfaction Guarantee[]” is **GRANTED** with leave to file an amended complaint to allege, if possible, defendant’s failure to “repair, replace or refund a failed product.”<sup>10</sup> *Id.*

### C. Standing

Next, defendant argues that Young lacks standing to pursue claims arises from LED Bulbs that he did not purchase. The Court does not agree.

“[A] Plaintiff may have standing to assert claims for unnamed class members based on products he or she did not purchase so long as the products and alleged misrepresentations are substantially similar.” *Brown v. Hain Celestial Grp., Inc.*, 913 F. Supp. 2d 881, 890 (N.D. Cal. 2012); *see also Astiana v. Dreyer's Grand Ice Cream, Inc.*, 2012 WL 2990766, at \*11 (N.D. Cal. 2012) (“the critical inquiry seems to be whether there is sufficient similarity between the products purchased and not purchased”). “The majority of the courts that have carefully analyzed the question hold that a plaintiff may have standing to assert claims for unnamed class members based on products he or she did not purchase so long as the products and alleged misrepresentations are substantially similar.” *Miller v. Ghirardelli Chocolate Co.*, 912 F. Supp. 2d 861, 869 (N.D. Cal. 2012) (noting that “substantial similarity” could be ascertained by examining “product composition” and “whether the alleged misrepresentations are sufficiently similar across product[s]”).

Here, plaintiff alleges that he purchased three “100 Watt Standard A-Type” LED Bulbs. (CAC ¶ 32.) The Court finds that Young has standing to assert claims with regard to two other types of LED Bulbs, namely “Reflector (Flood/Spot)” and “Specialty” Bulbs, because plaintiff alleges substantially similar misrepresentations concerning longevity and cost savings. (*See* CAC

<sup>10</sup> At oral argument, plaintiff’s counsel seemed to suggest that the representation may be circumstantial evidence of other claims. The court takes no position on that argument.

¶ 17 (identifying the three types of LED light bulbs manufactured by Cree as “Standard A-Type, Reflector (Flood/Spot), and Specialty; ¶¶ 19–21 (alleged misrepresentations for Standard A-Type); ¶¶ 23–24 (alleged misrepresentations for Reflector); ¶ 25 (alleged misrepresentations for Specialty).) Accordingly, defendant’s motion to dismiss on standing grounds is **DENIED**.

#### **D. Punitive Damages**

Cree argues that plaintiff’s request for punitive damages under the CLRA fails because he does not allege that “an officer, director, or managing agent of the corporation . . . consciously disregarded, authorized, or ratified each act of oppression, fraud, or malice.” Cal. Civ. Code §§ 3294(b); *see Kanfer v. Pharmacare U.S., Inc.*, 142 F. Supp. 3d 1091, 1108 (S.D. Cal. 2015). The Court concurs and finds that dismissal of plaintiff’s request for punitive damages under the CLRA is appropriate in this case.

Accordingly, defendant’s motion is **GRANTED** with regard to plaintiff’s request for punitive damages under the CLRA with leave to amend to allege, if possible, that “an officer, director, or managing agent of the corporation . . . consciously disregarded, authorized, or ratified each act of oppression, fraud, or malice” now in accordance with this order or 60 days before the close of discovery with leave of the Court should evidence be discovered to support the allegation. *Id.*

#### **IV. CONCLUSION**

For the reasons set forth above, the Court hereby **GRANTS IN PART** and **DENIES IN PART** defendant’s motion to dismiss as follows:

**1. On the topic of preemption, the Court:**

- A. GRANTS** defendant’s motion to dismiss as to the first category of representations, namely those that reiterate disclosures required to be made on the product’s principal display panel or Lighting Facts label.
- B. DENIES** as to the second category of representations, namely those that present information regarding comparative energy consumption, energy cost savings, and lifespan.
- C. DENIES** as to the third category of representations, namely those that

present information regarding comparative energy consumption, energy cost savings, and lifespan, namely those that state that Cree's products are "100% Satisfaction Guaranteed."

2. With respect to the legal sufficiency of the complaint on the second and third categories of representations, the Court:

- A. **GRANTS** defendant's motion on the fraud counts, namely Counts I, II, III and V, with leave to amend to plead reliance and the specific representations on which plaintiff relied.
- B. **GRANTS** defendant's motion on the negligence-based counts, namely Counts VI and IX, with leave to amend regarding whether plaintiff was exposed to "independent personal liability."
- C. **DENIES** defendant's motion as to Count VII for unjust enrichment.
- D. **DENIES** defendant's motion as to Count VIII for breach of express and implied warranties with respect to comparative product life and energy savings. However, the motion as to a claim based on "100% Satisfaction Guaranteed" is **GRANTED** with leave to allege, if possible, defendant's failure to "repair, replace or refund a failed product."

3. Defendant's motion based on standing is **DENIED**.

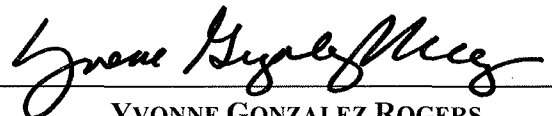
4. Defendant's motion with respect to punitive damages is **GRANTED** with leave to amend now in accordance with this order or 60 days before the close of discovery with leave of the Court should evidence support the allegation.

Plaintiff shall file an amended complaint within 21 days of this Order. Defendant shall file its response within 21 after plaintiff's filing.

This terminates Docket Nos. 31, 32.

**IT IS SO ORDERED.**

Dated: April 9, 2018



YVONNE GONZALEZ ROGERS  
UNITED STATES DISTRICT COURT JUDGE

# Light Bulbs Survey

## Screening Section

For this survey, we have some questions about light bulbs. We also have some questions about you and your household to help us make sure we include a variety of people in this study.

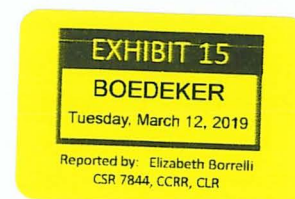
## Industry

[MULTI-SELECT. RESPONDENT SELECTING 'None of these' NOT ALLOWED TO PICK ANY OTHERS]

Please indicate which of the following industries you or a close family member have worked for pay in the past two years. (Please select all that apply.)

- ☐ Management
- ☐ Business and Financial Operations
- ☐ Computer and Mathematical
- ☐ Architecture and Engineering
- ☐ Life, Physical, and Social Science
- ☐ Community and Social Service
- ☐ Legal
- ☐ Educational Instruction and Library
- ☐ Arts, Design, Entertainment, Sports, and Media
- ☐ Healthcare Practitioners and Technical
- ☐ Healthcare Support
- ☐ Protective Service
- ☐ Food Preparation and Serving Related
- ☐ Building and Grounds Cleaning and Maintenance
- ☐ Personal Care and Service
- ☐ Sales and Related
- ☐ Office and Administrative Support
- ☐ Farming, Fishing, and Forestry
- ☐ Construction and Extraction
- ☐ Installation, Maintenance, and Repair
- ☐ Production
- ☐ Transportation and Material Moving
- ☐ Military Specific
- ☐ Market Research
- ☐ None of the above

[TERMINATE IF market research is SELECTED]



**Gender**

Are you:

Male .....	1
Female .....	2

**Age**

What is your age?

UNDER 18.....	1
18-29 .....	2
30-44 .....	3
45-59 .....	4
60 OR OLDER .....	5

**[TERMINATE IF BELOW AGE 18]****Household Income**

The next question is about the total income of YOUR HOUSEHOLD for last calendar year – for the 12 months of 2018. Please include your income PLUS the income of all members living in your household (including cohabiting partners and armed forces members living at home). Please count income BEFORE TAXES and from all sources (such as wages, salaries, tips, net income from a business, interest, dividends, child support, alimony, Social Security, public assistance, pensions, and retirement benefits). What was your total HOUSEHOLD income for the 12 months of 2018?

- ☐ Less than \$25,000
- ☐ \$25,000 to \$34,999
- ☐ \$35,000 to \$49,999
- ☐ \$50,000 to \$74,999
- ☐ \$75,000 to \$99,999
- ☐ \$100,000 to \$149,999
- ☐ \$150,000 or more
- ☐ Prefer not to answer

## State

In which state do you live?

State Pick List [drop-down box of all 50 States +Washington DC in Alphabetical order]

**[Terminate if not in the United States.]**

WE WILL WANT TO TRACK GENDER, AGE, HHI AND REGION DURING THE FIELDING.

## Education

What is the highest level of school you have completed?

- ☐ Less than high school
- ☐ High school
- ☐ Some college
- ☐ Bachelor's degree or higher

## Purchase History Section [Do not show in survey]

## General Questions

How much do you agree with the following statements?

1. "I'm always looking for new ideas to improve my home."
2. "I would buy eco-friendly products if they were less expensive"
3. "Technology is moving so fast I don't even bother to try and keep up."

Strongly disagree, Disagree, Neutral, Agree, Strongly Agree

### Lightbulb Purchase

Have you purchased any of the following in the past four years (2015-2018)? [RANDOMIZE]

- Incandescent light bulbs
- Fluorescent tubes
- Compact fluorescent (CFL) light bulbs
- Halogen bulbs
- LED light bulbs
- Wi-Fi enabled LED light bulbs
- None of the above

[Terminate if no LED]

### Awareness of brands

[MULTI SELECT] [only if respondent selected light bulbs above][in alphabetical order]

Which of the following brands of LED light bulbs have you heard of?

3M
Cree
EarthLED
EcoSmart
FEIT
GE
Geobulb
Halco
IKEA
Insignia
OSRAM
Phillips
SunSun
Switch
Sylvania
TCP/TruDim
Utilitech
None of the above

[Terminate if "None of the above"]

### Familiarity With Brands

[MULTI SELECT][ [show list of those brands respondents are aware of from previous question]

How familiar are you with each of the following brands of LED light bulbs?

This is a brand I know...

a lot about / a little about / just heard the name

### Brands Purchased

[MULTI SELECT][ [of those brands respondents are aware of]

Which Brands of LED light bulbs have you purchased in the past four years?

Brand	Have Purchased	Have Not Purchased

### Decision Role

[MULTI SELECT][List all brands purchased]

For the LED light bulbs you purchased in the past four years please select all that apply.

Brand	I made the decision myself	I was involved in the decision making	Someone else made the decision
List brands listed as purchased in response to question above			

[TERMINATE IF "SOME ONE ELSE MADE THE DECISION" IS THE ONLY OPTION SELECTED]

## Conjoint Section

[Randomly assign respondent to the 100 Watt or 60 Watt scenario]

Next, we have a brief exercise to help us learn about your preferences when purchasing LED light bulbs. We hope you find this exercise interesting. There are no “right” or “wrong” answers. We are simply interested in your opinions.

[For 60 Watt: On the following screens you will be presented with different standard A19 / E26 type LED light bulbs, which use 10 Watt but emit as much light as 60 Watt incandescent light bulbs, and the associated prices. Assume that you are purchasing your favorite brand.]

[For 100 Watt: On the following screens you will be presented with different standard A19 / E21 type LED light bulbs, which use 16 Watt but emit as much light as 100 Watt incandescent light bulbs, and the associated prices. Assume that you are purchasing your favorite brand.]

Please indicate which of the given options you would prefer. After you make your selection, you will see a follow-up question asking if you would purchase that option.

Below is a list of features and terms with definitions to review before starting the exercise.

After you begin the exercise, if you want to see the information again, you can use your mouse to hover over the feature and a pop-up box will provide more information.

Attribute	Description
Wattage	<p>[For 60 Watt: A 10 Watt LED bulb emits as much light as a 60 Watt incandescent bulb.]</p> <p>[For 100 Watt: A 16 Watt LED bulb emits as much light as a 100 Watt incandescent bulb.]</p>
Shape	<p>For 60 Watt: A19</p> <p>For 100 Watt: A21</p>
Socket	<p>For 60 Watt: E26</p> <p>For 100 Watt: E21</p>
Lumen	Lumen is a measure of the total quantity of visible light emitted by a light bulb.

Color	The color temperature is measured in Kelvin. Lower values like the standard incandescent 2700K produce a more yellow light, higher values like 5000K create a bluer light.
Dimmable	The light output of a dimmable light bulb can be regulated, thereby providing more options for lighting a room.
Indoor / Outdoor	Some light bulbs have some water resistance, making them suitable for outdoor usage.
Warranty	<p>LED light bulbs come with different warranties. Here we offer:</p> <ol style="list-style-type: none"> <li>1. 10 years with original receipt and packaging</li> <li>2. 10-year 100% satisfaction guarantee</li> <li>3. Standard 90-day warranty</li> </ol>
Lifetime	<p>Traditional incandescent light bulbs typically last between 1,000 and 2,000 hours. According to the US Department of Energy and depending on their design and components, some LED light bulbs last five times longer than incandescent light bulbs, others can last up to 25 times longer than incandescent light bulbs.</p> <p>Annual energy costs are generally estimated based on usage of 3 hours per day, every day at an average cost of \$0.11 per kilowatt hour.</p>

	<p>[For 60 Watt: A 10 watt LED bulb consumes 50 watt energy less than the 60 watt incandescent light bulb it is meant to replace.]</p> <p>[For 100 Watt: A 16 watt LED bulb consumes 84 watt energy less than the 100 watt incandescent light bulb it is meant to replace.]</p>
Comparison to cheap LED light bulbs	Light bulbs differ in price and quality. Here we offer under certain conditions that the LED light bulb will last six times longer than cheap LED light bulbs.
Price	Price per bulb

*Attributes and Levels for Conjoint Module*

Attribute	Description
Wattage	[60 Watt Replacement, 10 Watt] [100 Watt Replacement, 16 Watt]
Shape	[For 60 watt: A19] [For 100 watt: A21]
Socket	For 60 Watt: E26 For 100 Watt: E21
Color	1. Daylight (5000K) 2. Soft white (2700K)
Dimmable	1. Yes 2. No
Indoor / Outdoor	1. Yes 2. No
Warranty	1. 10 years with original receipt and packaging, have to pay for shipment 2. 10-year 100% satisfaction guarantee, redeemable at retailer 3. Standard 90-day warranty, redeemable at retailer
Lifetime	For 60 Watt:  1. Lasts 4+ years (5,000 hours), with estimated lifetime savings of \$27.50 over incandescent bulbs.

	<ol style="list-style-type: none"> <li>2. Lasts 13+ years (15,000 hours) with estimated lifetime savings of \$82.50 over incandescent bulbs.</li> <li>3. Lasts 22+ years (25,000 hours) with estimated lifetime savings of \$137.50 over incandescent bulbs.</li> <li>4. Lasts 31+ years (35,000 hours) with estimated lifetime savings of \$192.50 over incandescent bulbs.</li> </ol> <p>For 100 Watt:</p> <ol style="list-style-type: none"> <li>1. Lasts 4+ years (5,000 hours) with estimated lifetime savings of \$46 over incandescent bulbs.</li> <li>2. Lasts 13+ years (15,000 hours) with estimated lifetime savings of \$138 over incandescent bulbs.</li> <li>3. Lasts 22+ years (25,000 hours) with estimated lifetime savings of \$230 over incandescent bulbs.</li> <li>4. Lasts 31+ years (35,000 hours) with estimated lifetime savings of \$321.50 over incandescent bulbs.</li> </ol>
Comparison to cheap LED light bulbs	<ol style="list-style-type: none"> <li>1. The LED light bulb will last six times longer than cheap LED light bulbs.</li> <li>2. No claim [blank]</li> </ol>
Price per bulb	<p>For 60 watt replacement:</p> <ol style="list-style-type: none"> <li>1. \$3.99</li> <li>2. \$5.99</li> </ol>

	<ol style="list-style-type: none"><li>3. \$7.99</li><li>4. \$9.99</li><li>5. \$11.99</li></ol> <p>For 100 watt replacement:</p> <ol style="list-style-type: none"><li>1. 5.99</li><li>2. 7.99</li><li>3. 9.99</li><li>4. 11.99</li><li>5. 13.99</li></ol>
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*The Conjoint Module*

Please indicate which of the given options you would select.

	Option				
	1	2	3	4	5
Attribute 1					
Attribute 2					
Attribute 3					
Attribute 4					
Attribute 5					
Price					
Which option would you prefer?					

[randomize all but price and “which option would you prefer?”]

Would you purchase the option you selected above?

- ☐ Yes
- ☐ No

**[CONJOINT DESIGN MATRIX AND BETTER EXAMPLE TO BE PROVIDED IN SEPARATE EXCEL FILE.]**

## Closing

### Understanding

Did you have a clear understanding of the questions in this survey?

- ☐ Yes [SKIP TO LAST QUESTION]
- ☐ No [ASK NEXT QUESTION]

Which part was not understandable?

### Comments

Do you have any additional comments?

Thank you for your help and contribution today. We very much appreciate your participation in our research study.

## **EXHIBIT 2**

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I, STEFAN BOEDEKER, do hereby declare under penalty of perjury that I have read the foregoing transcript; that I have made any corrections as appear noted, in ink, initialed by me, or attached hereto; that my testimony as contained herein, as corrected, is true and correct.

Executed this 21 day of March, 2019, at Los Angeles, California.



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STEFAN BOEDEKER  
Volume I

1 NAME OF CASE: Jeff Young v. Cree,  
 Inc., United States  
 District Court, Northern  
 District of California,  
 Oakland Division

2 DATE OF DEPOSITION: March 12, 2019

3 NAME OF WITNESS: Stefan Boedeker

4 Reason Codes:

5 1. To clarify the record.

6 2. To conform to the facts.

7 3. To correct transcription errors.

8 Page 21 Line 5 Reason 3

9 From laborers to labels

10 Page 28 Line 19 Reason 3

11 From In the lead of to in the lead-up to

12 Page 64 Line 21 Reason 1

13 From After the last sentence add  
to The claims "up to 3x as long as the cheap  
LED bulbs" and "6x as long as the cheap LED"  
are described in paragraphs 22 and 23 of the  
Amended Complaint as well as on page 10 of the  
Order re Motion to Dismiss from April 9, 2018.

14 Page 154 Line 10 Reason 1

15 From After the last sentence add  
to The row "Lifetime" in the conjoint section  
shows the lifetime and the savings over the  
stated lifetime. Therefore, the relevant  
description includes an explanation of  
lifetime savings as they are shown in the  
conjoint module.

16 Page 164 Line 24 Reason 3

17 From devalue to evaluate

18 Page 165 Line 2 Reason 3

19 From devalue to evaluate

20 Page 174 Line 2 Reason 1

21 From After the last sentence add  
to The claims "up to 3x as long as the cheap  
LED bulbs" and "6x as long as the cheap LED"  
are described in paragraphs 22 and 23 of the  
Amended Complaint as well as on page 10 of the  
Order re Motion to Dismiss from April 9, 2018.

22 Page 177 Line 15 Reason 1

23 From Add after the last sentence  
to It does not matter whether the cell is  
blank or contains "no claim".

22 Page 192 Line 21 Reason 1

23 From Add after the last sentence  
to After I had completed the review of current  
market prices I realized that the prices  
originally set for the conjoint study were  
likely too high, To accommodate the decline in  
current market prices, I asked the vendor to  
apply lower prices than listed in the original  
draft questionnaire.

22 Page 137 Line 20 Reason 1

23 From Add after the last sentence  
to My staff had included three questions from  
CREE\_00070939 in the survey to distract from  
the fact that this survey would be used in  
litigation related to an LED manufacturer and  
instead to make the survey appear to be a  
typical marketing survey. By oversight, I did  
not reference CREE\_00070939 in a footnote. To  
clarify, these three questions are not used in  
my analysis and have no bearing on the results  
of my analysis.

TSG Reporting - Worldwide - 877-702-9580

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15 UNITED STATES DISTRICT COURT  
16 NORTHERN DISTRICT OF CALIFORNIA  
17 OAKLAND DIVISION

18 JEFF YOUNG, on behalf of himself and all  
19 others similarly situated,

20 Plaintiff,

21 vs.

22 Cree, Inc.,

23 Defendant.  
24

Case No: 4:17-cv-06252-YGR

25 **CERTIFICATE OF SERVICE FOR**  
26 **ERRATA TO DEPOSITION OF**  
27 **STEFAN BOEDEKER**  
28

**CERTIFICATE OF SERVICE**

I, Harold Darling, declare that I am over the age of eighteen (18) and not a party to the entitled action. My business address is Audet & Partners, LLP, which is located at 711 Van Ness Avenue, Suite 500, San Francisco, California 94102-3229, hdarling@audetlaw.com, and on March 21, 2019, I caused to be served the following:

**CERTIFICATE OF SERVICE FOR ERRATA TO DEPOSITION OF  
STEFAN BOEDEKER**

The aforementioned documents were delivered, in accordance with Federal Rules of Civil Procedure Rule 5, via electronic mail, to the parties and their respective attorneys of record as indicated below:

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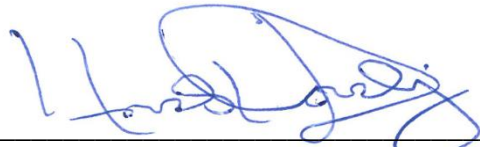
*Attorney for Plaintiff Jeff Young*

*Attorneys for Plaintiff Jeff Young*

I declare under penalty of perjury, under the laws of the United States of America, that the foregoing is true and correct.

Date: March 21, 2019

Signature: \_\_\_\_\_



Harold Darling

## **EXHIBIT 3**

1 testimony?

2           A.     It is my understanding -- I'm not a lawyer  
3 so I did not interpret the -- the legal aspect, but  
4 -- of her decision, but there are several statements  
5 on ~~laborers~~ <sup>labels</sup> were tested, the direct statements, and  
6 from what I recall, again, that case is several  
7 years ago, but there were some -- some statements  
8 were quite long, like a sentence, 10, 12, 15 words,  
9 and other ones were more like two or three buzz  
10 words. And so for the conjoint, where the  
11 participants see the attributes on a screen when  
12 they do the -- the internet survey, it's a common or  
13 global best practices for --

14                     [Reporter requests clarification.]

15           THE WITNESS: Best practices for surveys  
16 that you don't call attention to something. So I  
17 explained the concept to my client and then she  
18 basically took the longer statements and summarized  
19 them so that everything in the end was four or five  
20 words long. And that was, at least in my  
21 understanding, the main point that the -- the judge  
22 decision said that she -- in her opinion, it does  
23 not test the exact statement and therefore was not  
24 able to quantify damages. And I forgot how many  
25 statements there were, but there was one I remember

1 analysis?

2 A. The first time -- I mean, first of all,  
3 I'm a trained statistician and my -- my focus in --  
4 in economics was in econometrics.

5 [Reporter requests clarification.]

6 THE WITNESS: Econometrics, which is the  
7 statistical application -- or the application of  
8 statistical theory and methods in economics.

9 I have also applied statistics in many  
10 other areas. And in the late '90s, conjoint had,  
11 like, its first breakthrough more like in -- in  
12 consulting. At that time, I worked for Arthur  
13 Andersen's business consulting division. So as not  
14 an -- an auditor or tax person. There was a  
15 business consulting division. And that's kind of  
16 like the first times that I studied conjoint and  
17 applied conjoint more in a -- a business consulting  
18 sense. More specifically, I do remember quite a few  
19 engagements where, in the ~~lead-of~~ <sup>lead-up to</sup> the whole dot-com  
20 boom, companies came up with new ideas, new  
21 products, or addition to products, changes in  
22 existing products and --

23 [Reporter requests clarification]

24 THE WITNESS: Changes in existing  
25 products.

1 of years or hours, and it's the comparison and the  
2 long-term warranty. Those are three claims that  
3 best reflected the longevity.

4 Q. Part of your definition of "longevity  
5 claims" includes a representation, as stated by you,  
6 that "Defendant's LED bulbs will last up to three  
7 times as long as the cheap LED bulbs."

8 Do you see that?

9 A. Yes.

10 Q. What is a cheap LED bulb?

11 MR. WOODS: Objection. Beyond the scope.  
12 Beyond the scope.

13 You can answer.

14 MS. LINDAHL: They're his words.

15 THE WITNESS: Yeah, I'm just looking at  
16 it. There's some quotation marks or that is  
17 something that -- it says, "up to three times as  
18 long," and unfortunately, there's no footnote, but  
19 that's not something I made up, so it's something  
20 that I probably -- either it's in the motion or in  
21 the -- in the -- in the complaint itself.\*

22 BY MS. LINDAHL:

23 Q. The phrase "cheap LED bulbs" is included  
24 in one of the attributes that you included in your  
25 conjoint study, correct?

\*to The claims "up to 3x as long as the cheap LED bulbs" and "6x as long as the cheap LED" are described in paragraphs 22 and 23 of the Amended Complaint as well as on page 10 of the Order re Motion to Dismiss from April 9, 2018.

1 that's just a standard to filter down the group to  
2 people who --

3 [Reporter requests clarification.]

4 THE WITNESS: To filter down the group of  
5 respondents to people who actually have had -- made  
6 the decision to buy the product and then purchased  
7 it.

8 BY MS. LINDAHL:

9 Q. Are there any other portions of your  
10 pretest survey that have questions or phrasing that  
11 is identical to questions or phrasing in documents  
12 that Cree produced in discovery?

13 MR. WOODS: Objection. Object to form.

14 THE WITNESS: I don't know because, I  
15 mean, these survey questions were -- were in the  
16 one -- as I said, the decision-making process is --  
17 is always a question in there. The other ones, I  
18 would have to -- to talk to staff. If they copied  
19 it from here or from some other source, I don't

20 know.\*

\*My staff had included three questions from CREE\_00070939 in the survey to  
distract from the fact that this survey would be used in litigation related  
to an LED manufacturer and instead to make the survey appear to be a typical  
marketing survey. By oversight, I did not reference CREE 00070939 in a  
footnote. To clarify, these three questions are not used in  
my analysis and have no bearing on the results of my analysis.

21 BY MS. LINDAHL:

22 Q. Is it typical for your staff to copy  
23 survey questions from case-related discovery  
24 documents?

25 A. I mean, copy survey questions, I mean,

1 There's definitely -- this was given to me and I  
2 checked it, and, to me, it was sufficient to explain  
3 lifetime in the context of this survey.

4 Q. Do you know why energy costs -- or  
5 information about energy costs is included in the  
6 definition of "lifetime"?

7 A. I mean, there's a reference to energy, the  
8 Department of Energy, five times longer. I don't  
9 know. It just seemed to be an add-on here in the  
10 definition. I don't know why it was included.\*

11 Q. The -- the row above that includes  
12 information about warranty.

13 Do you see that?

14 A. Oh, the whole box above it, yeah, okay. I  
15 see that.

16 Q. And the column on the right describes  
17 three different warranties, correct?

18 A. Yes.

19 Q. Who drafted the language in that box?

20 A. I mean, that may have also come from --  
21 from discussions with Counsel or relative or maybe  
22 even from the complaint, so these are, like, three  
23 types of warranties that are offered as -- as levels  
24 of an attribute in -- in this case.

25 Q. What is meant by the phrase "100 percent

\*The row "Lifetime" in the conjoint section shows the lifetime and the savings over the stated lifetime. Therefore, the relevant description includes an explanation of lifetime savings as they are shown in the conjoint module.

1 trend.

2 Q. So the four levels, do those represent  
3 different representations that an LED lighting  
4 manufacturer would make on its packaging or other  
5 marketing materials?

6 MR. WOODS: Object to form.

7 You can answer.

8 THE WITNESS: I mean, I -- I could imagine  
9 that those are -- without pointing to a particular  
10 package or marketing material but that those are  
11 kind of like items that can be put out. And, again,  
12 from just a few pictures we looked at earlier, I  
13 mean, the lifetime savings or -- or hours or years  
14 of -- of lifespan are on packages in general and are  
15 used, right, to basically indicate that products  
16 have the longevity attribute or characteristic. And  
17 here, I wanted to measure if specifying specific --  
18 or specifying the amount of time that the lifetime  
19 covers, if there's any correlation, right? You  
20 could say at some point, it may flatten out. At  
21 other points, it keeps on going. So I just wanted  
22 to have data points that enabled me to see if the  
23 actual lifetime plays a role. And this is really  
24 with respect to ~~devalue~~<sup>evaluate</sup> a model --

25 [Reporter requests clarification.]

1           THE WITNESS: De -- it's with respect with  
2           the goal to ~~devalue~~<sup>evaluate</sup> a model to show to the trier  
3           of fact that this is the model that can be used and  
4           it's flexible enough to model different input  
5           parameters. I mean, as I sit here right now, I  
6           don't know what the exact lifetime is of the  
7           products in question, but with this one, I -- I  
8           could now model a comparison if the lifetime  
9           increases or decreases, right? Will that have an  
10          impact on -- on the demand for those products? And  
11          the demand would be, you know, how much are people  
12          paying for a product like that. That was the reason  
13          to -- to include this attribute and choose  
14          particular levels.

15       BY MS. LINDAHL:

16           Q.     So is this attribute seeking to measure  
17          how a consumer would value the difference in the  
18          actual lifetime of a bulb or a different  
19          representation to the consumer about the lifetime of  
20          the bulb?

21           MR. WOODS: Object to form.

22           You can answer.

23       BY MS. LINDAHL:

24           Q.     Do you understand what I mean?

25           A.     Not quite. I mean, I -- why don't you

1 last six times longer than cheap LED lightbulbs."

2 Do you see that?

3 A. Yes.

4 Q. What do you mean by "cheap LED  
5 lightbulbs"?

6 A. I think we -- I testified to that earlier.  
7 It's really in comparison to what the consumer sees.  
8 So when they now see -- this would be part of a  
9 conjoint menu, and they're going to see price of  
10 6.99, for example, then it's up to the consumer to  
11 see at what point something is cheap. So this is  
12 not specified because it's relatively speaking and  
13 in comparison to some other product, right?

14 So now, what I wanted to test here is just  
15 a statement that rather than giving exact and  
16 precise hours and years of lifetime, if there's a  
17 comparison statement that indicates that the product  
18 that they're buying is -- has more -- higher  
19 longevity because of this kind of information, I  
20 wanted to test if that plays a role. So this is  
21 also not -- it's basically like a -- a conjoined  
22 attribute that I'm populating with -- with two -- in  
23 this case two levels to just see if there's an  
24 effect on the consumer, will demand change if no  
25 such information is available or if a product is

1 really more durable by a certain factor than a  
2 competing product.\*

\*The claims "up to 3x as long as the cheap LED bulbs" and "6x as long as the cheap LED" are described in paragraphs 22 and 23 of the Amended Complaint as well as on page 10 of the Order re Motion to Dismiss from April 9, 2018.

3 Q. When -- when you talk about -- or when you  
4 include language in the conjoint model around things  
5 like "lifetime" and lightbulb lasting a certain  
6 amount of time, what are you referring to?

7 A. That's all defined in the bubble, right?  
8 I mean, it's basically explained, and now I'm back  
9 in -- I don't know -- 14 with the unspecified page  
10 starting, "Note: The following content," right? So  
11 it basically explained what lifetime in that context  
12 means and also to comparison to a cheap one. It  
13 just explained what that means in the context of the  
14 study. And it is -- there's no absolute definition,  
15 as in content -- or context definition when I'm  
16 seeing -- not I, but the participant sees the choice  
17 menus, then they know "lifetime" in this context  
18 means that, and then they -- they read the actual  
19 labels, as you can see later on, all these examples,  
20 and it uses very specific X years, Y years, X hours,  
21 Y hours. So it says lifetime is meaning this, and  
22 here are the different levels.

23 Q. Are you --

24 A. It's kind of a self-contained explanation  
25 within the conjoint menu.

1           So in the end, all of these different  
2     attribute combinations are randomly assigned to the  
3     options, and in this case is -- the attribute name  
4     is always, I think, in the very left column. Here,  
5     let me look at the -- the screenshots and verify  
6     that there's not another one.

7           Yeah, so that's the -- the Edgewood is  
8     there, and then it basically -- if a particular  
9     binary attribute is not present, then it's left  
10    blank. So no -- somebody who has an option that has  
11    no entry, it's basically left blank, that's what the  
12    blank means, so almost like an instruction to the  
13    programmer, right? No -- we didn't want them to  
14    write "no claim." We just wanted them to leave  
15    the -- the box plain.\*     \*It does not matter whether the cell is  
                                  blank or contains "no claim".

16       Q.     Why didn't you want them to write "no  
17    claim"?

18       A.     I mean, it's -- it's -- I decided to,  
19    like, leave it blank because then it's just  
20    information that is not there and that means there's  
21    nothing said about six times larger -- or longer  
22    than the cheap lightbulbs.

23       Q.     So the document that was marked as  
24    Exhibit 14 with the screenshots --

25       A.     Yes.

1 prices that were actually chosen are the one in my  
2 report.

3 Q. So --

4 A. And then the report mentions the -- the  
5 conjoint choice menu.

6 Q. So at one point before your report was  
7 finalized, were you considering using the price  
8 levels that start on page 10 and continue onto page  
9 11 of Exhibit 15?

10 A. I mean, this is what I considered, right?  
11 So this -- as I said, this may just be an earlier  
12 draft which then wasn't even discussed with the --  
13 with the vendor because the vendor used the data  
14 points you see in my report that are also reflected  
15 in the -- in the example of the choice menu on  
16 Exhibit 14.

17 Q. Do you know why there were different price  
18 levels included in Exhibit 15 than ultimately wound  
19 up in the conjoint model set forth on Exhibit -- in  
20 Exhibit 14?

21 A. I don't recall that.\*

22 Q. Okay.

23 MR. WOODS: Is this a good time?

24 MS. LINDAHL: Sure.

25 THE VIDEOGRAPHER: Okay. Going off the

\*After I had completed the review of current market prices I realized that the prices originally set for the conjoint study were likely too high. To accommodate the decline in current market prices, I asked the vendor to apply lower prices than listed in the original draft questionnaire.

## **EXHIBIT 4**

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13 *himself and all others similarly situated*

14 [Additional counsel on signature page]

15 UNITED STATES DISTRICT COURT  
16 NORTHERN DISTRICT OF CALIFORNIA  
17 OAKLAND DIVISION

18 JEFF YOUNG, on behalf of himself and all  
19 others similarly situated,

20 Plaintiff,

21 vs.

22 Cree, Inc.,

23 Defendant.  
24

Case No: 4:17-cv-06252-YGR

**PLAINTIFF JEFF YOUNG'S  
RESPONSES AND OBJECTIONS TO  
INTERROGATORIES NOS. 1-13, SET  
ONE**

**PLAINTIFF JEFF YOUNG’S RESPONSES AND OBJECTIONS TO  
INTERROGATORIES NOS. 1-13, PROPOUNDED BY DEFENDANT  
CREE, INC.**

Jeff Young (“PLAINTIFF”), through his undersigned counsel, and pursuant to Fed. R. Civ. P. 33, hereby responds and objects to Defendant’s Interrogatories Nos. 1-13, Set One, that were served by electronic mail to plaintiff on November 8, 2018

All responses and objections to Defendant’s discovery are made without in any way waiving or intending to waive, but on the contrary, intending to preserve and preserves the following:

(a) Evidence for any purpose, of the answer or subject matter thereof, in any subsequent proceeding in, or the trial of, this or any other actions;

(b) The right to object to the use of any said answers, or such matter thereof, in any subsequent proceeding in, or the trial of, this or any other actions;

(c) The right to object on any ground at any time for a demand for further response to these or any other discovery requests or other discovery procedures involving or relating to the subject matter of the discovery herein being answered; and

(d) The right to at any time, revise, correct, add to, or clarify any of the answers propounded herein.

Plaintiff has used Plaintiff’s best recollection at the time of answering these interrogatories.

**INTERROGATORY NO. 1:**

State the name, address, and telephone number of each individual likely to have discoverable information RELATING TO this ACTION that YOU may use to support YOUR claims and defenses, and state the subject matter of that information.

**Plaintiff’s Response to Interrogatory No. 1**

Plaintiff objects to the extent that the interrogatory is vague and ambiguous. Plaintiff further objects to this interrogatory to the extent it seeks matters immune from discovery under either the attorney-client privilege and/or the work product doctrine. Plaintiff further objects

1 on the ground that the interrogatory seeks an improper legal or expert opinion. Without  
2 waiving and subject to these objections, Plaintiff states: Plaintiff himself, who may be reached  
3 through his counsel; and currently unspecified employees and representatives of Defendant,  
4 who may be reached through their counsel. Plaintiff reserves the right to supplement this  
5 response as investigation or discovery continues.

6 **INTERROGATORY NO. 2:**

7 Provide a computation of each category of damages that YOU claim.

8 **Plaintiff's Response to Interrogatory No. 2**

9 Plaintiff objects to the extent that the interrogatory is vague and ambiguous. Plaintiff  
10 further objects to this interrogatory to the extent it seeks matters immune from discovery under  
11 either the attorney-client privilege and/or the work product doctrine. Plaintiff further objects  
12 on the ground that the interrogatory seeks an improper legal or expert opinion. Plaintiff further  
13 objects to the extent that the interrogatory seeks premature disclosure of expert opinions.  
14 Without waiving and subject to these objections, Plaintiff reserves the right to supplement this  
15 response as investigation or discovery continues.

16 **INTERROGATORY NO. 3:**

17 IDENTIFY any witness YOU may call at trial under Rules 702, 703, or 705 of  
18 the Federal Rules of Evidence and (i) a complete statement of all opinions the witness  
19 will express and the basis and reason for them; (ii) the facts or data considered by the  
20 witness in forming them; (iii) any exhibits that will be used to summarize or support  
21 them; (iv) the witness's qualifications, including a list of all publications in the  
22 previous 10 years; (v) a list of all other cases in which, during the previous 4 years,  
23 the witness testified as an expert at trial or by deposition; and (vi) a statement of the  
24 compensation to be paid for the study and testimony in this ACTION.

25 **Plaintiff's Response to Interrogatory No. 3**

26 Plaintiff objects to the extent that the interrogatory is vague and ambiguous. Plaintiff  
27 further objects to this interrogatory to the extent it seeks matters immune from discovery under  
28 either the attorney-client privilege and/or the work product doctrine. Plaintiff further objects

1 on the ground that the interrogatory seeks an improper legal or expert opinion. Plaintiff further  
2 objects to the extent that the interrogatory seeks premature disclosure of expert opinions.  
3 Without waiving and subject to these objections, Plaintiff reserves the right to supplement this  
4 response as investigation or discovery continues.

5 **INTERROGATORY NO. 4:**

6 IDENTIFY the location at which YOU purchased the Cree bulbs at issue in this  
7 ACTION and the date on which YOU purchased the bulbs.

8 **Plaintiff's Response to Interrogatory No. 4**

9 Plaintiff objects to the extent that the interrogatory is vague and ambiguous, and  
10 duplicative of previous requests. Without waiving and subject to these objections, Plaintiff  
11 purchased the bulbs prior to April 2015 most likely from the Home Depot location in Windsor,  
12 CA. Plaintiff does not recall the exact date. Plaintiff reserves the right to supplement this  
13 response as investigation or discovery continues.

14 **INTERROGATORY NO. 5:**

15 IDENTIFY the price YOU paid for the Cree bulbs you purchased that are at  
16 issue in this ACTION.

17 **Plaintiff's Response to Interrogatory No. 5**

18 Plaintiff objects to the extent that the interrogatory is vague and ambiguous, and  
19 duplicative of previous requests. Without waiving and subject to these objections, Plaintiff  
20 recalls spending approximately \$10-\$20 per bulb. Plaintiff does not recall the exact price.  
21 Plaintiff reserves the right to supplement this response as investigation or discovery continues.

22 **INTERROGATORY NO. 6:**

23 IDENTIFY and DESCRIBE the location and conditions in which you stored  
24 each Cree bulb that is the subject of this ACTION, including without limitation whether  
25 each bulb was stored inside or outside; the ambient temperature to which each bulb was  
26 exposed in storage, on average; whether each bulb was exposed to water or moisture;  
27 and the period of time in which each bulb was stored before being installed.

28 **Plaintiff's Response to Interrogatory No. 6**

1 Plaintiff objects to the extent that the interrogatory is vague and ambiguous as to several  
2 things, including time frame. Plaintiff further objects to this interrogatory to the extent it seeks  
3 matters immune from discovery under either the attorney-client privilege and/or the work  
4 product doctrine. Plaintiff further objects on the ground that the interrogatory seeks an  
5 improper legal or expert opinion. Plaintiff further objects on the ground that the interrogatory  
6 is duplicative of previous requests. Without waiving and subject to these objections, Plaintiff  
7 responds that the bulbs went directly into the wall sconces after purchase, and then after they  
8 burned out one of them was stored in a metal cabinet on an enclosed front porch, which is  
9 depicted in two photographs produced concurrently with these interrogatories. Plaintiff  
10 reserves the right to supplement this response as investigation or discovery continues.

11 **INTERROGATORY NO. 7:**

12 DESCRIBE the locations and conditions in which YOU used each Cree bulb at  
13 issue in this ACTION, including without limitation the average hours per day YOU  
14 operated each bulb, and the time period during which you used each bulb.

15 **Plaintiff's Response to Interrogatory No. 7**

16 Plaintiff objects to the extent that the interrogatory is vague and ambiguous as to several  
17 things, including time frame. Plaintiff further objects to this interrogatory to the extent it seeks  
18 matters immune from discovery under either the attorney-client privilege and/or the work  
19 product doctrine. Plaintiff further objects on the ground that the interrogatory seeks an  
20 improper legal or expert opinion. Plaintiff further objects on the ground that the interrogatory  
21 is duplicative of previous requests. Without waiving and subject to these objections, Plaintiff  
22 responds that the bulbs were used in the hallway lighting sconces that are depicted in  
23 photographs produced concurrently with these interrogatories, and on no more than a few  
24 hours per day on dates from approximately April of 2015 to August of 2016. Plaintiff reserves  
25 the right to supplement this response as investigation or discovery continues.

26 **INTERROGATORY NO. 8:**

27 DESCRIBE the residence in which YOU operated each Cree bulb at issue in  
28 this ACTION, including without limitation the age of the home, number of rooms, and its

1 electrical wiring system.

2 **Plaintiff's Response to Interrogatory No. 8**

3 Plaintiff objects to the extent that the interrogatory is vague and ambiguous as to several  
4 things, including time frame. Plaintiff further objects to this interrogatory to the extent it seeks  
5 matters immune from discovery under either the attorney-client privilege and/or the work  
6 product doctrine. Plaintiff further objects on the ground that the interrogatory seeks an  
7 improper legal or expert opinion. Plaintiff further objects on the ground that the interrogatory  
8 is duplicative of previous requests. Without waiving and subject to these objections, Plaintiff's  
9 residence is a two unit home built 50-70 years ago. The upstairs unit, where Plaintiff resides,  
10 is a two bedroom unit. The downstairs unit has 2-3 bedrooms. It has a fairly modern 200 amp  
11 electrical service that is shared between the two units. Plaintiff reserves the right to supplement  
12 this response as investigation or discovery continues.

13 **INTERROGATORY NO. 9:**

14 IDENTIFY and DESCRIBE any electrical events or disturbances that affected  
15 YOUR residence while the Cree bulbs at issue in this ACTION were installed in your  
16 home, including without limitation any and all lightning strikes, power outages, and  
17 power surges, regardless of whether the bulb was in operation at the time of the electrical  
18 event or disturbance.

19 **Plaintiff's Response to Interrogatory No. 9**

20 Plaintiff objects to the extent that the interrogatory is vague and ambiguous. Plaintiff  
21 further objects to this interrogatory to the extent it seeks matters immune from discovery under  
22 either the attorney-client privilege and/or the work product doctrine. Plaintiff further objects  
23 on the ground that the interrogatory seeks an improper legal or expert opinion. Without  
24 waiving and subject to these objections, Plaintiff does not recall any specific electrical events  
25 or disturbances which may have taken place during the time the bulbs were being used.  
26 Plaintiff reserves the right to supplement this response as investigation or discovery continues.

27 **INTERROGATORY NO. 10:**

28 IDENTIFY all LED bulbs YOU have purchased from 2013 until the date of your

1 answer, including without limitation: (1) the brand, wattage, and color temperature of  
2 each bulb; (2) the date on which YOU purchased each bulb; (3) the location from which  
3 you purchased each bulb; (4) where and when YOU installed and operated each bulb;  
4 (5) the conditions in which YOU operated each bulb, including average operating hours  
5 per day.

6 **Plaintiff's Response to Interrogatory No. 10**

7 Plaintiff objects to the extent that the interrogatory is vague and ambiguous. Plaintiff  
8 further objects to this interrogatory to the extent it seeks matters immune from discovery under  
9 either the attorney-client privilege and/or the work product doctrine. Plaintiff further objects  
10 on the ground that the interrogatory seeks an improper legal or expert opinion. Plaintiff further  
11 objects that the interrogatory is duplicative of previous requests. Without waiving and subject  
12 to these objections, Plaintiff states that he purchased 3 packs of 3-way LED bulbs on or around  
13 1/22/18 for \$16.97 each from Home Depot in Windsor for use in his mother's lamps. The  
14 receipt for this purchase is reflected in the pictures produced concurrently. Plaintiff also  
15 purchased a Great Value 100-watt replacement LED on or around 8/6/16, the package of which  
16 is reflected in the pictures produced concurrently, for personal use around his home in the  
17 bulbs. He also purchased a GE LED 100-watt replacement bulb from Home Depot on 6/2/18  
18 for personal use around his home and it was replaced into the wall sconce. He also purchased  
19 an 8-pack package of EcoSmart 60w LED bulbs from Home Depot on 1/11/18, price unknown,  
20 for personal use around his home in his ceiling light fixtures. Plaintiff may have purchased  
21 other LED bulbs at other times. Plaintiff reserves the right to supplement this response as  
22 investigation or discovery continues.

23 **INTERROGATORY NO. 11:**

24 Provide the make, model, year, brand, and any other information necessary to  
25 identify every light fixture in which you installed the Cree 100-Watt replacement lightbulb  
26 at issue in this ACTION, including but not limited to the "wall sconces" about which you  
27 testified on Page 38, Lines 16-25 of your deposition.

28 **Plaintiff's Response to Interrogatory No. 11**

1 Plaintiff objects to the extent that the interrogatory is vague and ambiguous. Plaintiff  
2 further objects to this interrogatory to the extent it seeks matters immune from discovery under  
3 either the attorney-client privilege and/or the work product doctrine. Plaintiff further objects  
4 on the ground that the interrogatory seeks an improper legal or expert opinion. Without  
5 waiving and subject to these objections, Plaintiff responds that he does not know the make,  
6 model, year, or brand of the sconces, and they do not indicate the make or model on the outside  
7 of the sconces. Plaintiff believes they are approximately 10 years old and most likely  
8 purchased at Home Depot. Plaintiff reserves the right to supplement this response as  
9 investigation or discovery continues.

10 **INTERROGATORY NO. 12:**

11 DESCRIBE the physical characteristics of every light fixture in which you installed  
12 the Cree 100-Watt replacement lightbulb at issue in this ACTION, including but not  
13 limited to the “wall sconces” about which you testified on Page 38, Lines 16-25 of your  
14 deposition, including its recommended wattage, the maximum number of bulbs each  
15 fixture uses or takes, and whether it is fully or partially enclosed.

16 **Plaintiff's Response to Interrogatory No. 12**

17 Plaintiff objects to the extent that the interrogatory is vague and ambiguous. Plaintiff  
18 further objects to this interrogatory to the extent it seeks matters immune from discovery under  
19 either the attorney-client privilege and/or the work product doctrine. Plaintiff further objects  
20 on the ground that the interrogatory seeks an improper legal or expert opinion. Without  
21 waiving and subject to these objections, Plaintiff responds that he does not know the make,  
22 model, year, or brand of the sconces, and they do not indicate the make or model on the outside  
23 of the sconces. Plaintiff believes they are approximately 10 years old and most likely  
24 purchased at Home Depot. Plaintiff reserves the right to supplement this response as  
25 investigation or discovery continues.

26 **INTERROGATORY NO. 13:**

27 For each of the light fixtures identified in Interrogatory No. 11 that uses or takes  
28 more than one bulb, including but not limited to the “wall sconces” about which you

1 testified on Page 38, Lines 16-25 of your deposition, state how many light bulbs YOU  
 2 installed in each fixture, and DESCRIBE each bulb, including its type (LED, incandescent,  
 3 CFL, etc.), wattage, color temperature, brand, and installation date.

4 **Plaintiff's Response to Interrogatory No. 13**

5 Plaintiff objects to the extent that the interrogatory is vague and ambiguous. Plaintiff  
 6 further objects to this interrogatory to the extent it seeks matters immune from discovery under  
 7 either the attorney-client privilege and/or the work product doctrine. Plaintiff further objects  
 8 on the ground that the interrogatory seeks an improper legal or expert opinion. Without  
 9 waiving and subject to these objections, Plaintiff responds that he does not know the make,  
 10 model, year, or brand of the sconces, and they do not indicate the make or model on the outside  
 11 of the sconces. Plaintiff believes they are approximately 10 years old and most likely  
 12 purchased at Home Depot. Of the eight bulbs in the wall sconces, four of them are LED bulbs  
 13 100W equivalent, and four are 100W equivalent CFL bulbs. Plaintiff reserves the right to  
 14 supplement this response as investigation or discovery continues.

15  
16  
17  
18  
19  
20 Dated: December 13, 2018

By: s/ S. Clinton Woods

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**CERTIFICATE OF SERVICE**

I, Harold Darling, declare that I am over the age of eighteen (18) and not a party to the entitled action. My business address is Audet & Partners, LLP, which is located at 711 Van Ness Avenue, Suite 500, San Francisco, California 94102-3229, hdarling@audetlaw.com, and on December 14, 2018, I caused to be served the following:

**PLAINTIFF JEFF YOUNG'S RESPONSES AND OBJECTIONS TO  
INTERROGATORIES NOS. 1-13, SET ONE**

was delivered, in accordance with Federal Rules of Civil Procedure Rule 5, via electronic mail, to the parties and their respective attorneys of record as indicated below:

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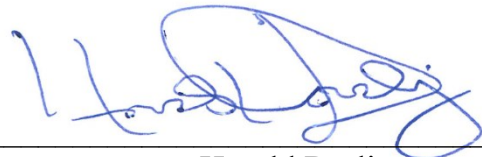
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*Attorneys for Plaintiff Jeff Young*

I declare under penalty of perjury, under the laws of the United States of America, that the foregoing is true and correct.

Date: December 14, 2018 Signature: \_\_\_\_\_



Harold Darling





03/08/2015



03/08/2015



03/08/2015

## **EXHIBIT 5**

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
OAKLAND DIVISION

---oOo---

JEFF YOUNG, individually            )  
And on behalf of all other        )  
Similarly situated,                )  
  ) Plaintiffs,        ) No. 4:17-CV-06252-YGR  
  ) vs.                )  
CREE, INC.,                         )  
  ) Defendants.     )  
\_\_\_\_\_ )

---oOo---

DEPOSITION OF JEFFRY YOUNG

September 18, 2018

Reported by: DENNIS M. SOUZA, CSR #3893

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## I N D E X

Page

Deposition of: JEFFRY YOUNG

Examination by: Mr. Richter

7

Examination by: Mr. Woods

130

- - -

## EXHIBITS MARKED FOR IDENTIFICATION

1		
2		
3	1	(Defendant Cree, Inc.'s Amended Notice
4		Of Deposition of Plaintiff Jeff Young) 19
5	2	(E-mail dated August 6, 2016 to Jeff
6		Young from Cree Customer Support) 21
7	3	(Class Action Complaint Jury Trial Demand) 63
8	4	(Amended Class Action Complaint Jury Trial
9		Demand) 80
10	5	(Colored photocopy) 105

- - -

1 MR. WOODS: No. 10:44

2 THE WITNESS: I misunderstood. I would have 10:44

3 expected it to, yes; no, I don't understand that. 10:44

4 MR. RICHTER: Q. But then that is what the 10:44

5 warranty is for, right, because if it doesn't last 10:44

6 100,000 miles you take it back to the dealer and they 10:44

7 fix it, right? 10:44

8 A. A fair statement; that it will be fixed if it 10:44

9 doesn't last. 10:44

10 Q. That is what I am getting at, Mr. Young. 10:44

11 A. I see. 10:44

12 Q. You see what I am saying? 10:44

13 A. Now, yeah. 10:44

14 Q. In other words, just because somebody says my 10:44

15 power train warranty is going to last 100,000 miles, 10:44

16 there may be some problems with the car or defect with 10:44

17 the car, not every car is perfect, but what the 10:45

18 manufacturer is saying is: Hey, if it breaks, come 10:45

19 back, we will fix it, right? 10:45

20 A. I understand. 10:45

21 MR. WOODS: Calls for speculation. Objection 10:45

22 to form. You can answer. 10:45

23 MR. RICHTER: Q. I am going to ask the 10:45

24 question again just so we are clear. 10:45

25 In other words, when you see a warranty for a 10:45

1 product you buy and say it is a ten-year, let's just 10:45  
2 say a 100,000-mile power train warranty, you don't 10:45  
3 understand and expect that every single car lasts 10:45  
4 100,000 miles in the power train, some of them are 10:45  
5 going to break. And what happens then is the 10:45  
6 manufacturer fixes it, right? 10:45  
7 MR. WOODS: Calls for speculation. Object to 10:45  
8 form. You can answer. 10:45  
9 THE WITNESS: I can answer? 10:45  
10 MR. WOODS: Yes. 10:45  
11 THE WITNESS: Yes. I would expect that it 10:45  
12 would just be fixed. 10:45  
13 MR. WOODS: Sorry, unless I tell you not to 10:45  
14 answer, you can answer. 10:45  
15 THE WITNESS: Okay. 10:45  
16 MR. RICHTER: Q. Yeah. I forgot to go over 10:45  
17 that. 10:46  
18 A. Oh, boy, that is not what they do -- that is 10:46  
19 right. We don't have a judge here. Why don't you 10:46  
20 speak up. 10:46  
21 Q. He can't rule on client's objections. 10:46  
22 A. Oh, come on. 10:46  
23 Q. Let's go back to -- 10:46  
24 So your practice is with light bulbs and not 10:46  
25 just CREE light bulbs, but LED light bulbs that you 10:46

1 middle at line 13 called Individual Plaintiff Facts. 11:31

2 Do you see that? 11:31

3 A. Yes. 11:31

4 Q. Is this the section that you read about you? 11:31

5 A. Yes. 11:31

6 Q. It is three sentences, right? 11:31

7 A. Okay. Yeah. 11:31

8 Q. Did you read this to make sure it was 11:31

9 accurate? 11:31

10 A. Yes. 11:31

11 Q. It says here: Plaintiff -- 11:32

12 A. It wasn't accurate. 11:32

13 Q. It what? 11:32

14 A. It was not accurate. 11:32

15 MR. WOODS: Wait for him to ask the question. 11:32

16 THE WITNESS: Okay, sorry. 11:32

17 MR. RICHTER: Q. Yeah, this isn't accurate, 11:32

18 is it? 11:32

19 A. No. 11:32

20 Q. Did you tell -- did you make a change? 11:32

21 A. I didn't -- no. I didn't. 11:32

22 Q. Did you tell anybody: This is isn't 11:32

23 accurate? 11:32

24 A. I can't -- I don't think I should answer 11:32

25 that. 11:32

1 it. 11:33

2 Oh, no, I could be wrong. Sorry, I have got 11:33

3 to wing it here a little bit. 11:33

4 I didn't remember where I bought the bulbs, 11:33

5 that was the problem. I didn't know if I bought them 11:33

6 at Home Depot or I bought them at Walmart. 11:33

7 I hadn't reinspected the fine print on that. 11:33

8 I know I am winging it but that's how it 11:33

9 occurred, that is why the error occurred. 11:33

10 I thought that I bought it at Walmart or 11:33

11 could have bought it at Walmart as opposed to 11:33

12 Home Depot. 11:33

13 MR. RICHTER: Q. So at the time you reviewed 11:33

14 this complaint before it was filed, you thought you 11:33

15 could have bought it at Walmart? 11:33

16 A. Yeah. I thought it might have been accurate 11:33

17 back then. 11:33

18 Q. Is it accurate that you purchased three 11:34

19 100-watt standard A-type bulbs on or about April 15th? 11:34

20 A. I bought them at different times. 11:34

21 Q. So you didn't buy three in April of 2015, did 11:34

22 you? 11:34

23 MR. WOODS: Objection. Mischaracterizes the 11:34

24 testimony, argumentative, you can answer. 11:34

25 THE WITNESS: No. I did not, no. I bought 11:34

1 A. I used to. 11:44

2 Q. When? 11:44

3 A. Years ago. 11:44

4 Q. Did you buy any of these three bulbs on-line? 11:44

5 A. No. 11:44

6 Q. So you bought these three bulbs in a store? 11:44

7 A. Yes, for sure. 11:45

8 Q. And you don't recall where? You recall one 11:45

9 was Home Depot, right? 11:45

10 A. I don't recall that. I am going because it 11:45

11 says "Home Depot." I don't have any specific 11:45

12 recollection of buying any of these bulbs. 11:45

13 Q. Then it goes on to say here within months all 11:45

14 three bulbs burned out. Right? 11:45

15 A. Yes. 11:45

16 Q. Well, was it months or was it a year? 11:45

17 A. Don't know. 11:45

18 Q. Did you remember writing an E-mail to CREE on 11:45

19 their web site and complaining about the bulbs? 11:45

20 A. I actually don't remember it. 11:45

21 Q. Do you remember filling out information on 11:45

22 the web site that caused you to get Exhibit 2 in 11:45

23 response? 11:45

24 A. No recollection of that at all. 11:45

25 Q. We will go into that later. 11:46

1 the exact numbers. 11:51

2 Q. Representations that the bulb would perform 11:51

3 better than less expensive LED and non-LED bulbs, 11:51

4 right? 11:51

5 A. Yeah. Absolutely. 11:52

6 Q. And representations that the bulbs were 11:52

7 guaranteed and/or warranted for performance? 11:52

8 A. Right. 11:52

9 Q. You saw that? 11:52

10 A. Yes. 11:52

11 Q. Look at the next paragraph. It says: "In 11:52

12 addition, Mr. Young viewed some internet and 11:52

13 television advertisements by CREE prior to 11:52

14 purchasing." Is that accurate? 11:52

15 A. I don't know that it was CREE. I saw 11:52

16 advertisements representing LED light bulbs. 11:52

17 Q. On TV? 11:52

18 A. On TV. 11:52

19 Q. What about internet? 11:52

20 A. Oh, yeah. 11:52

21 Q. You saw ads on the internet? 11:52

22 A. Oh, yeah, yeah. 11:52

23 Q. But I thought you testified earlier that you 11:52

24 don't recall any CREE ads on the internet? 11:52

25 MR. WOODS: Objection, mischaracterizes the 11:52

1 testimony. You can answer. 11:52

2 THE WITNESS: Yeah. I don't remember if 11:52

3 CREE, specifically. I don't remember any, 11:52

4 specifically, I just know I have seen them. 11:52

5 MR. RICHTER: Q. You've seen ads on the TV? 11:52

6 A. And the internet for LED bulbs. 11:52

7 Q. And you saw these ads before you bought the 11:53

8 CREE bulbs? 11:53

9 A. Yes. 11:53

10 Q. How long before? 11:53

11 A. I have no idea, years maybe. 11:53

12 Q. Years maybe? 11:53

13 A. Yeah. 11:53

14 Q. Did those ads contain any representations 11:53

15 about the length of time the bulbs would last or the 11:53

16 quality of the light or anything like that? 11:53

17 MR. WOODS: Object to form. You can answer. 11:53

18 THE WITNESS: Yes. 11:53

19 MR. RICHTER: Q. They did? 11:53

20 A. Yes. 11:53

21 Q. And you remembered that when you bought the 11:53

22 CREE bulbs? 11:53

23 A. Yes. 11:53

24 Q. Even though you don't remember that those ads 11:53

25 had anything to do with CREE? 11:53



1 Q. And again, let me go back now to make sure we 11:54  
2 are on the same page. 11:54  
3 A. Okay. 11:54  
4 Q. It says representations that the bulbs would 11:54  
5 last up to 25 times longer than incandescent bulbs. 11:54  
6 Do you remember ever seeing that in a television or an 11:54  
7 internet ad? 11:54  
8 A. Not specifically, not those numbers. 11:54  
9 Q. Did you rely on anything like that from a 11:54  
10 television or internet ad in purchasing the CREE 11:54  
11 bulbs? 11:55  
12 A. No. Just in purchasing LEDs in general. 11:55  
13 Q. What you relied on for purchasing the CREE 11:55  
14 bulbs is you looked at the -- 11:55  
15 A. Sorry. 11:55  
16 Q. No worries. What you relied on you said in 11:55  
17 purchasing the CREE bulbs is you looked at the 11:55  
18 package, right? 11:55  
19 A. Right. 11:55  
20 Q. All right. It says next that you attempted 11:55  
21 to contact CREE to request replacement but you were 11:55  
22 unsuccessful through their web site. 11:55  
23 A. Yes. 11:55  
24 Q. So you did contact CREE eventually through 11:55  
25 their web site, right? 11:56

1 A. Okay. 01:21

2 Q. So I am asking for your understanding. 01:21

3 A. Okay. 01:21

4 Q. All right? So you understand that you are 01:21

5 the class representative, right? 01:21

6 A. Yes. 01:21

7 Q. Do you have an understanding of what duties 01:21

8 you have to the class? 01:22

9 A. No, not particularly -- some duties. 01:22

10 Q. Do you know what it means to be a class 01:22

11 representative? 01:22

12 A. Not really, I know you have got to pay 01:22

13 attention to what's going on, which I am not doing 01:22

14 well. 01:22

15 Q. Do you, as a class representative do you 01:22

16 expect to receive any kind of compensation? 01:22

17 A. I think it is a possibility. 01:22

18 Q. What do you understand you might receive? 01:22

19 A. I have no dollar amount in mind. I think 01:22

20 whatever the law finds appropriate. 01:22

21 Q. As a class representative, what have you done 01:22

22 so far in this litigation? 01:22

23 A. Discussions with the attorney and come here. 01:22

24 Q. You have reviewed pleadings, right? 01:22

25 A. I don't even -- I don't understand pleadings. 01:22

1 Q. In other words, a complaint is a pleading. 01:22

2 A. Oh, yeah, I have reviewed complaints, yes. 01:22

3 Q. Have you kept abreast of what is going on in 01:23

4 this case? 01:23

5 A. Not as well as I should have. 01:23

6 Q. Do you know where this case was filed in 01:23

7 court? 01:23

8 A. No. I know it is filed in a court. 01:23

9 Q. Do you know which court? 01:23

10 A. In San Francisco. I could be wrong. 01:23

11 Q. Do you know if it is Federal or State Court? 01:23

12 A. I do not. 01:23

13 Q. Were you consulted about where this case 01:23

14 should be filed? 01:23

15 MR. WOODS: Objection. 01:23

16 MR. RICHTER: Q. Yes or no. 01:23

17 MR. WOODS: Objection. Invades 01:23

18 attorney-client privilege. Don't answer. 01:23

19 MR. RICHTER: Q. Okay. Do you know that 01:23

20 there were motions to dismiss the complaint in this 01:23

21 case? 01:23

22 A. I heard something about that. 01:23

23 Q. Do you know what the rulings were? 01:23

24 A. I assume -- it wasn't dismissed because we 01:23

25 are here but no, I do not know. Sorry. 01:23

## **EXHIBIT 6**

OUTSIDE COUNSEL ONLY – SUBJECT TO PROTECTIVE ORDER

**IN THE UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN FRANCISCO DIVISION**

JEFF YOUNG, individually and on behalf of all others similarly situated,  <div style="text-align: right;">Plaintiff,</div>	)	Case No. 4:17-cv-06252-YGR
	)	
	)	
v.	)	
	)	
CREE, INC.,	)	
	)	
Defendant.	)	
	)	

**EXPERT REPORT OF JESSE DAVID, PH.D.**

**I. ASSIGNMENT**

1. Named Plaintiff in this action, Jeff Young, has accused Defendant Cree, Inc. (“Cree”) of selling products with false and/or misleading information on the product packaging.<sup>1</sup> Plaintiff alleges that claims made on the labels of various types of Cree’s light-emitting diode (“LED”) lightbulbs (the “Accused Products”) “overpromise the longevity of the Lightbulbs” and that “the various lifetime savings estimations asserted by Defendant in its advertising are illusory and incorrect.”<sup>2</sup> Plaintiff also alleges that claims made in Cree’s product labels indicating a “10-Year Warranty” and a “100% Satisfaction Guarantee” are false and/or misleading.<sup>3</sup> I refer to the label statements accused by Plaintiff collectively as the “Accused Claims.”

---

<sup>1</sup> Amended Class Action Complaint, April 30, 2018 (“Complaint”).

<sup>2</sup> Complaint, ¶¶19-31.

<sup>3</sup> Complaint, ¶30.

## OUTSIDE COUNSEL ONLY – SUBJECT TO PROTECTIVE ORDER

2. Plaintiff seeks to represent a class of consumers described as, “[a]ll persons in California who purchased the LED Lightbulbs for end use, and not resale, during the period from March 2013 to the present.”<sup>4</sup> Plaintiff alleges that Cree’s actions caused “economic loss”—i.e., damages—to members of the putative class in the form of “a price premium for the Cree LED bulbs that they would not have paid absent the false marketing representations.”<sup>5</sup> Plaintiff has filed an expert report on damages, prepared by Stefan Boedeker.<sup>6</sup> In his report, Mr. Boedeker describes a consumer survey which he designed and implemented to “quantify the economic loss to consumers if they were given the information at the point of purchase that Defendant’s Accused Claims were false and misleading” and to “calculate class-wide damages if the disclosure that Defendant’s Products are not as represented.”<sup>7</sup> Referring to Mr. Boedeker’s report, Plaintiff claims damages to be “nearly 48-60% of the purchase price Class members paid for the LED lightbulbs.”<sup>8</sup>

3. I have been asked by counsel for Cree to review and respond to certain claims in Plaintiff’s filings, including the report prepared by Mr. Boedeker. My report, which follows, is based on my professional training and experience and my review and analysis of information produced in the course of this litigation as well as public information. The materials reviewed by myself and my staff and which I have considered in the preparation of my opinions are listed in Appendix 1.<sup>9</sup> I reserve the right to revise my opinions if additional information is provided to me—including but not limited to any expert reports, deposition testimony and exhibits, pretrial briefs, trial testimony, etc.—or if additional research, reflection, or the correction of inadvertent errors leads me to change my opinion. I may rely on visual aids and demonstrative exhibits that demonstrate the bases of my opinions. I have not yet prepared any

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<sup>4</sup> Plaintiff’s Memorandum of Law in Support of Motion for Class Certification, January 18, 2019 (“Class Motion”), p. 1.

<sup>5</sup> Complaint, ¶9; and Class Motion, pp. 19-20.

<sup>6</sup> Expert Report of Stefan Boedeker in Support of Plaintiff’s Motion for Class Certification, January 18, 2019 (“Boedeker Report”).

<sup>7</sup> Boedeker Report, pp. 6-7.

<sup>8</sup> Class Motion, p. 1; and Boedeker Report, pp. 72-73.

<sup>9</sup> I also conducted an interview of Scott Schwab, currently Cree’s Vice President and General Manager, Lamps.

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exhibits for use at trial as a summary or support for opinions expressed in this report, but I expect to do so in accordance with the Court’s scheduling orders.

## **II. QUALIFICATIONS**

4. I am an economist and President of Edgeworth Economics, L.L.C. (“Edgeworth”). Edgeworth is a consulting firm that provides economic and financial analysis for complex litigation and public policy matters. Prior to founding Edgeworth with a group of economists in 2009, I was Senior Vice President at Criterion Economics and, before that, a Vice President at National Economics Research Associates, where, for approximately a dozen years, I performed economic analysis for a range of litigation, strategy, and public policy matters.

5. I hold a Bachelor’s degree in Physics and Economics from Brandeis University and a Ph.D. in Economics from Stanford University. Throughout my professional career, I have specialized in applied microeconomics and econometrics (the application of statistics to economic problems), as well as economic sub-fields related to regulation, antitrust, and intellectual property. My practice has focused on complex valuation matters, analysis of markets and regulations, and assessing damages in a variety of types of civil disputes, including those related to infringement of various forms of intellectual property—such as patents, trademarks, and copyrights—as well as cases involving claims of false advertising. In some instances, my research has been incorporated in public speeches, published writings, and expert testimony. I have testified as an expert witness in deposition and at hearings or trials on approximately 60 occasions. My curriculum vitae, which includes lists of my previous testimony, publications, and public presentations, is attached as Appendix 2.

6. Edgeworth’s fees for professional services are based on hourly billing rates. My time is currently billed at \$625 per hour and my firm’s compensation does not depend on the outcome of this case.

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### **III. BACKGROUND**

#### **A. Cree**

7. Cree is a public company, headquartered in North Carolina, which manufactures and distributes a variety of electronic products.<sup>10</sup> One of Cree’s product lines is LED lightbulbs. Cree’s website currently lists several dozen models of LED lightbulbs, which differ by wattage, size and shape, light type (e.g., “soft white”), and other features.<sup>11</sup> Cree introduced these products in March 2013.<sup>12</sup> Cree’s primary (and formerly exclusive) retail outlet in the U.S. is The Home Depot.<sup>13</sup>

8. LED lightbulbs are lightbulbs powered by an LED chip. Cree’s lightbulbs are designed to reduce energy consumption and last longer than traditional incandescent lightbulbs, and to offer similar light characteristics and fit appliances designed for traditional bulbs.<sup>14</sup> Figure 1 shows a version of the label from a package for one of Cree’s LED lightbulbs as of 2013.

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<sup>10</sup> Cree 2018 Annual Report, p. 5.

<sup>11</sup> Cree website, [creebulb.com](http://creebulb.com).

<sup>12</sup> Deposition of Scott Schwab, January 4, 2019 (“Schwab Deposition”), p. 13.

<sup>13</sup> Schwab Deposition, pp. 26-27.

<sup>14</sup> Cree website, [creebulb.com/products](http://creebulb.com/products) and [creebulb.com/40-watt-replacement-soft-white](http://creebulb.com/40-watt-replacement-soft-white).

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**Figure 1**  
**CREE LED Lightbulb Label, 60-Watt Replacement, June 2013**



Source: CREE\_00064720.

9. As seen in Figure 1, Cree includes on the package label a variety of descriptions and claims related to the performance of the products. According to the Court, those claims can be grouped into four categories:

- 1) information that the manufacturer is required to disclose under the Energy Policy and Conservation Act (“EPCA”) and which is contained in the “Lighting Facts” box (the white box in Figure 1 with “Lighting Facts” at the top) and the “Principal Panel

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Display” (the black and white boxes with information about “brightness” and “estimated energy cost”);<sup>15</sup>

- 2) reiterations elsewhere on the label of information from the EPCA disclosures or other claims based on applying mathematical calculations to those disclosures—for example, a claim of “27+ years rated lifetime,” which is not present in the label shown in Figure 1 but which was present on other packages;<sup>16</sup>
- 3) information about comparisons of the product’s performance to the performance of other products—for example, the claim shown in Figure 1 of “84% less energy consumption...At \$0.11 per kWh when compared to 60W incandescent”;<sup>17</sup> and
- 4) claims related to Cree’s warranty—for example, the claim of “10 year warranty” shown in Figure 1 or the claim of “100% Satisfaction Guaranteed” (with additional disclaimers), which is not present in the label shown in Figure 1 but which has been contained in other product labels.<sup>18</sup>

### **B. Plaintiff’s Allegations**

10. Plaintiff claims to have purchased three 100W Cree lightbulbs in 2015 for “approximately \$15-20” each.<sup>19</sup> He further alleges that all three of the lightbulbs “burned out within 6 months to a year” and that he subsequently contacted Cree but “never received a meaningful response.”<sup>20</sup>

11. Plaintiff alleges that Cree’s label contains false and/or misleading claims including “promises of longevity as compared to the competitor lightbulbs, which allegedly results in

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<sup>15</sup> Order Re: Motion to Dismiss, April 9, 2018 (“April 2018 Order”), pp. 5-7; and U.S. Federal Trade Commission website, [www.ftc.gov/tips-advice/business-center/guidance/ftc-lighting-facts-label-questions-answers-manufacturers](http://www.ftc.gov/tips-advice/business-center/guidance/ftc-lighting-facts-label-questions-answers-manufacturers). The Court’s Order described three categories of information on the labels of the Accused Products in addition to the information required by the EPCA.

<sup>16</sup> April 2018 Order, pp. 7-9; and Boedeker Report, p. 4.

<sup>17</sup> April 2018 Order, pp. 9-10.

<sup>18</sup> April 2018 Order, pp. 7-8 and 10; and Boedeker Report, p. 4.

<sup>19</sup> Class Motion, p. 6.

<sup>20</sup> Class Motion, p. 6.

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energy and cost savings, with a performance warranty.”<sup>21</sup> Plaintiff further alleges that the Accused Claims “allow Cree to command a premium price for the Bulbs.”<sup>22</sup>

12. In his Class Motion, Plaintiff asserts that Cree “overpromises the longevity of the Lightbulbs” and that the factual question regarding the actual “lifetime of the bulbs” compared the longevity “promised” by Cree can be determined later using “common evidence.”<sup>23</sup> Citing Mr. Boedeker’s report, Plaintiff asserts that “each purchaser who bought the LED bulbs with the false longevity claims overpaid by 60.2% of the purchase price for 60W replacement bulbs and 47.6% of the purchase price for 100W bulbs.”<sup>24</sup>

13. I understand that the Court has dismissed Plaintiff’s claims to the extent that they relate to label descriptions in either of the first two categories listed above.<sup>25</sup> Thus, Cree’s label claims in the Lighting Facts box or claims elsewhere on the label that are identical to or substantially similar to those claims (such as an estimate of lifetime in hours that is an arithmetic conversion from the annual estimate in the Lighting Facts box) cannot result in a finding of liability against Cree.

14. I also understand that it is widely accepted, including by Plaintiff’s expert, that “LED light bulbs generally require about 18% of the energy required by an incandescent light bulb with the same light output, measured in lumens.”<sup>26</sup> In his Class Motion and Complaint, Plaintiff does not allege that descriptions on the labels of the Accused Products asserting energy savings relative to incandescent lightbulbs in percentage terms are false or misleading.

### **C. The Boedeker Report**

15. In his report, Mr. Boedeker terms the claims accused by Plaintiff the “Longevity Claims” and describes them as follows:<sup>27</sup>

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<sup>21</sup> Class Motion, p. 1.

<sup>22</sup> Class Motion, p. 1.

<sup>23</sup> Class Motion, pp. 5-6.

<sup>24</sup> Class Motion, p. 5.

<sup>25</sup> April 2018 Order, pp. 6-9.

<sup>26</sup> Boedeker Report, p. 5. See also, U.S. Department of Energy website, [www.energy.gov/energysaver/save-electricity-and-fuel/lighting-choices-save-you-money/how-energy-efficient-light](http://www.energy.gov/energysaver/save-electricity-and-fuel/lighting-choices-save-you-money/how-energy-efficient-light).

<sup>27</sup> Boedeker Report, p. 3.

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Collectively, the claims with regard to lifespan comparison to incandescent lightbulbs, that Defendant's LED bulbs will last "up to 3x as long as the cheap LED bulbs," and the "Satisfaction Guarantee" warranty claims alleged to be false and/or misleading...

Notably, Mr. Boedeker does not include the label statements about specific lifetime estimates such as "27+ years rated lifetime."

16. Mr. Boedeker then provides opinions related to the alleged damages that fall generally into three categories:

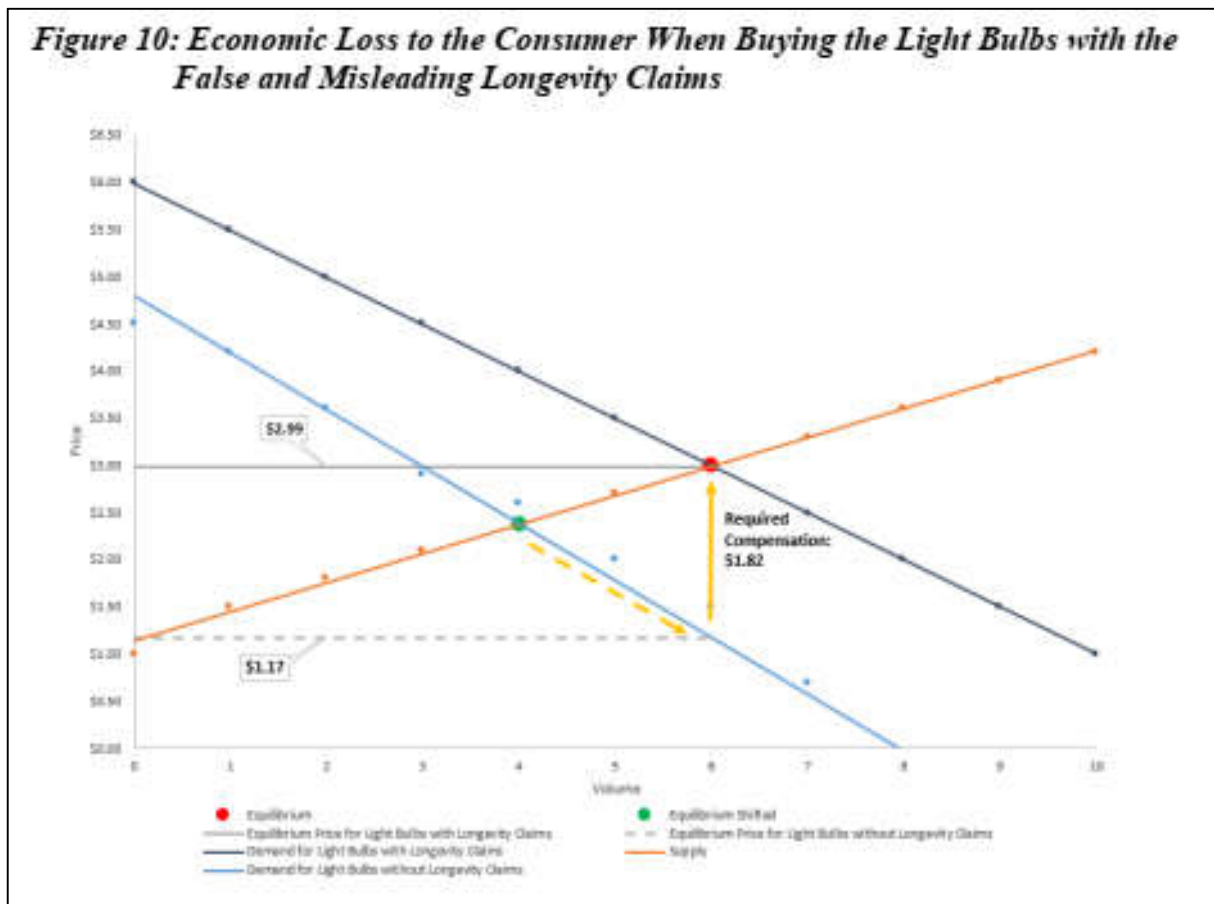
- 1) Mr. Boedeker first proposes a theoretical "economic loss model" for class-wide damages based on the difference between consumer demand for the Accused Products as actually sold relative to consumer demand for the same products if they had been sold without the "Longevity Claims" (the "but-for" scenario).<sup>28</sup> Mr. Boedeker proposes to measure the reduction in retail price that would have been necessary to induce the same number of consumers to purchase the Accused Products without the "Longevity Claims" on the labels as actually purchased them with those claims on the labels. He defines that reduction in price as the "economic loss," which would be applied to all members of the putative class. Figure 2 is a reproduction of the stylized example presented by Mr. Boedeker to demonstrate his approach. As shown here, Mr. Boedeker proposes to estimate the difference between the actual demand curve for the Accused Products and the "but-for" demand curve, measured at the quantity of actual consumption.

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<sup>28</sup> Boedeker Report, pp. 7-20.

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**Figure 2**  
**Mr. Boedeker's Proposed Framework for Classwide Damages**



Source: Boedeker Report, Figure 10.

- 2) Mr. Boedeker then reports the results of a conjoint survey in which he elicited respondents' preferences for hypothetical LED lightbulb products with a variety of features.<sup>29</sup> The features that he described to survey respondents and/or included as options in the survey itself are:<sup>30</sup>

- descriptions of physical characteristics of the lightbulbs, including wattage, light color, shape, socket type, dimmability, and indoor/outdoor;

<sup>29</sup> Boedeker Report, pp. 30-67.

<sup>30</sup> Boedeker Report, pp. 58-59 and supporting document "LED Conjoint Survey.docx". The survey provided some additional description of these features to respondents who selected to obtain it. [Boedeker Report, pp. 59-60]

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- a statement of a “comparison to cheap LED lightbulbs,” which was either a) “no claim” or b) “the LED light bulb will last six times longer than cheap LED light bulbs”;
- a statement related to the warranty, which was one of a) “standard 90-day warranty, redeemable at retailer”; b) “10-year 100% satisfaction guarantee, redeemable at retailer”; or c) “10 years with original receipt and packaging, have to pay for shipment”; and
- a statement of lifetime with estimated savings relative to incandescent bulbs, which was one of a) “lasts 4+ years (5,000 hours), with estimated lifetime savings of \$27.50 over incandescent bulbs”; b) “lasts 13+ years (15,000 hours), with estimated lifetime savings of \$82.50 over incandescent bulbs”; c) “lasts 22+ years (25,000 hours), with estimated lifetime savings of \$137.50 over incandescent bulbs”; or d) “lasts 31+ years (35,000 hours) with estimated lifetime savings of \$192.50 over incandescent bulbs.”

Mr. Boedeker presents his results in terms of the “part-worths” for each attribute.<sup>31</sup>

Part-worths are calculated by the survey software (Sawtooth) and represent estimates of the relative importance of each attribute as components of the respondents’ overall utility of the hypothetical products.<sup>32</sup>

- 3) Finally, Mr. Boedeker performs “market simulations” using the part-worth estimates.<sup>33</sup> The results of these simulations are estimates of the shares of survey respondents who would purchase hypothetical products at different price points with and without certain attributes. Mr. Boedeker terms the differences in willingness to pay for otherwise identical products with and without the “Longevity Claims” as the “economic loss” associated with Plaintiff’s claims. In his conclusion section, Mr. Boedeker presents the median and range of estimates of his “economic loss” based on differences in willingness to pay for hypothetical products with two versions of his “warranty” feature

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<sup>31</sup> Boedeker Report, pp. 65-67.

<sup>32</sup> Bryan K. Orme, Getting Started with Conjoint Analysis: Strategies for Product Design and Pricing Research, 3<sup>rd</sup> ed., Manhattan Beach, CA: Research Publishers LLC, 2014, pp. 26-27.

<sup>33</sup> Boedeker Report, pp. 70-76.

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(options b and c, listed above) and then separately for two versions of his “lifetime” feature (options a and d, listed above). The latter serves as the basis for Plaintiff’s claim for damages in his Class Motion, cited above.

#### IV. DAMAGES FRAMEWORK

17. I understand that, in order for a class to be certified, the plaintiff must present a method for computing damages for each member of the putative class that relies on common, as opposed to individualized, evidence. I further understand that, at the class-certification stage, the plaintiff must provide a reliable damages model that specifically measures only the damages attributable to the plaintiff’s particular theory of liability.

18. I understand that a consumer’s damages due to misrepresentations by a manufacturer or seller of a product are equal to the difference between the consumer’s actual financial circumstances and her financial circumstances in a hypothetical scenario in which the misrepresentations did not occur (the “but-for” world)—i.e., a hypothetical scenario in which the manufacturer changes the descriptions of the product to be true and non-misleading.<sup>34</sup> These damages also can be described as the difference between the price paid by the consumer and the actual value received. This approach satisfies the notion of a “make-whole” damages award by placing the consumer in the financial position she would have held had the allegedly unlawful conduct not occurred.

19. In some cases, the actual prices paid by consumers may be observable from receipts, point-of-sale records, or other sources. Depending on the circumstances, however, such records may not exist or may be difficult to obtain. Thus, it may not be possible to observe actual prices using common evidence. Nevertheless, assuming that price information is available, the next question becomes: What is the actual value of the product as received? The only economically objective measure of “value” in this context is market value—i.e., the price that would have prevailed in the marketplace had the defendant not made the misrepresentations at issue. Thus, in a class action related to marketing claims, if the misrepresentations caused retail prices to be higher than what they otherwise would have been,

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<sup>34</sup> See, for example, Federal Judicial Center, Reference Manual on Scientific Evidence, 3<sup>rd</sup> ed., Washington, D.C.: National Academies Press, 2011, pp. 432-443.

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then damages for a particular class member who would continue to purchase the product in the “but-for” world would equal the difference between the price she actually paid for the product and the price that would have prevailed in the “but-for” world. This difference can be described as a “price premium.”

20. Another possibility is that the misrepresentations caused some consumers to purchase the product who otherwise would not have done so, and therefore caused the quantity of the product sold to be greater than it otherwise would have been, but caused no impact on retail prices. In such a scenario, calculating damages would require an entirely different approach, as there would be two distinct groups of consumers: 1) those who would have purchased the product at the same price in the “but-for” world (and therefore suffered no damages); and 2) those who would have purchased some other product or no product in the “but-for” world. Consumers in the latter group may have experienced damages related to the costs and benefits of their alternative choices compared to their actual purchases. Measuring such damages therefore would require an inquiry into the availability, characteristics, and prices of other potential choices as well as the particular consumer’s preferences. Depending on the seller’s business strategy, it is also possible that the “but-for” world could involve some combination of lower prices and lower quantities. Again, that scenario would require a different damages approach for different consumers, depending on whether their purchasing behavior would have been different in the “but-for” world relative to the actual world.

21. To the extent that competitors’ strategies would differ in the “but-for” scenario relative to the actual scenario, that also should be considered in the analysis. For example, if, in the “but-for” scenario, the competitors of the accused product would lower their prices in response to any price reduction for the accused product, then the analysis of consumer response should account for those changes, as well.

22. In summary, calculating class-wide damages in a matter involving claims of misrepresentations on a product package requires a determination of the market price and quantity of the product if sold with only true and non-misleading claims on the package. That assessment requires an evaluation of both supply- and demand-side considerations, including: 1) the alternative labeling strategy of the seller; 2) the pricing strategy of the seller given the

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alternative label; 3) the reactions of competitors to those changes; and 4) consumers’ responses to those strategies.

**V. MR. BOEDEKER’S FRAMEWORK FOR ECONOMIC DAMAGES DOES NOT ADDRESS THE “BUT-FOR” SCENARIO AND IS BIASED TO OVERSTATE DAMAGES**

23. In his Class Motion, Plaintiff asserts that Cree’s use of the Accused Claims caused the prices of the Accused Products to be higher than they otherwise would have been.<sup>35</sup>

Plaintiff’s theory of liability is that he and the other Class members paid a premium for Cree’s LED bulbs based on the material misrepresentations made by Cree on the bulbs’ labeling, and reinforced in its marketing, in particular, that the LED bulbs last longer than as compared to incandescent bulbs and thus result in energy and cost savings to the consumer and that representation is affirmed by a performance warranty.

Plaintiff states that the Accused Claims “allow Cree to command a premium price” for the Accused Products that Mr. Boedeker’s proposed approach will measure that premium.<sup>36</sup>

24. However, according to Mr. Boedeker himself, that is neither the purpose nor the result of his method. His approach does not, and indeed cannot, identify whether prices for the Accused Products would have been lower in the “but-for” world, nor can it measure the amount of any such reduction. Mr. Boedeker’s proposed approach therefore fails to determine whether all (or any) members of the putative class suffered an “economic loss” and further does not measure such loss for anyone.

25. This problem is evident from Mr. Boedeker’s own description of his approach. Rather than describing his method as measuring the true “but-for” price—i.e., the price that would have prevailed in a world in which Cree removed the Accused Claims from the package—Mr. Boedeker states that he intends to identify “the price point on the demand curve that ensures that the same number of units that were sold in the actual world would also be sold in the but-for world.”<sup>37</sup> As shown in Figure 3, a stylized representation of the marketplace reproduced

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<sup>35</sup> Class Motion, p. 19.

<sup>36</sup> Class Motion, pp. 1 and 19-21.

<sup>37</sup> Boedeker Report, p. 18.

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from Mr. Boedeker’s report, the “but-for price” and the price Mr. Boedeker seeks to identify are not the same. Figure 3 shows three key price points from Mr. Boedeker’s example:

- 1) Actual market price of \$2.99 (large red dot)—This price is determined by the intersection of consumers’ willingness to pay for the Accused Products as actually sold (the grey line, also called the “demand curve”) and the retailers’ willingness to sell the Accused Products (orange line, also called the “supply curve”).
- 2) “But-for” market price of \$2.38 (large green dot)—This price is determined by the intersection of consumer demand for the Accused Products without the Accused Claims (blue line) and the supply curve.<sup>38</sup> As described by Mr. Boedeker, this price represents the “market equilibrium” in the scenario where the Accused Claims are removed from the package.<sup>39</sup>
- 3) Mr. Boedeker’s proposed price of \$1.17 (large blue dot)—This is the price Mr. Boedeker proposes to estimate, which is the price “that ensures that the same number of units that were sold in the actual world would also be sold in the but-for world.”<sup>40</sup>

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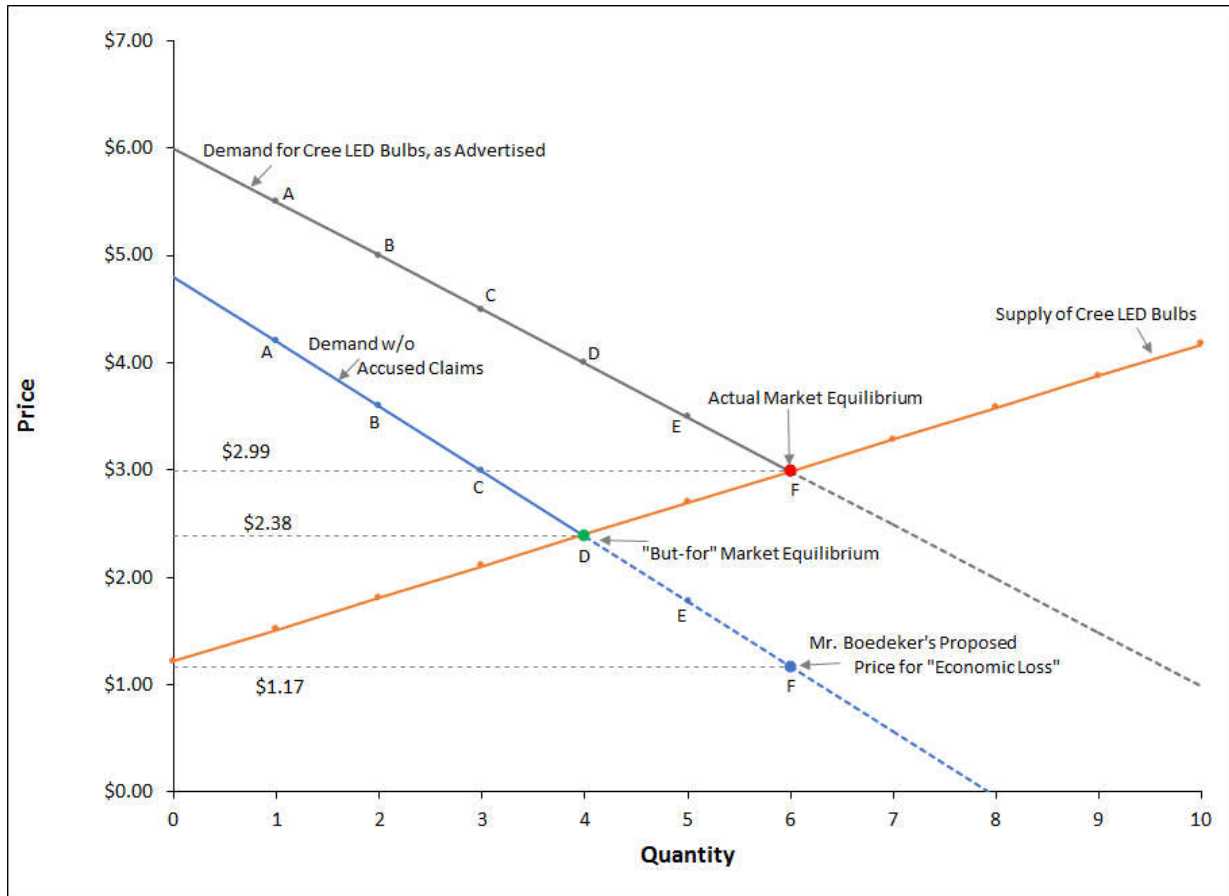
<sup>38</sup> Two assumptions implicit in Mr. Boedeker’s hypothetical scenario are 1) removing the Accused Claims would cause consumer demand to fall—i.e., that consumers in the aggregate would be willing to buy fewer bulbs at any given price point; and 2) the retailers are willing to sell more units at higher prices—i.e., that the supply curve slopes upward. I address both issues in more detail, below.

<sup>39</sup> Boedeker Report, p. 17.

<sup>40</sup> Boedeker Report, p. 18.

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**Figure 3**  
**Mr. Boedeker's Stylized Market Example**



Source: Boedeker Report, Figure 10 with annotations.

26. In Mr. Boedeker's stylized scenario, the putative class is comprised of six consumers (labeled "A" through "F") each of whom purchased the product with the Accused Claims at a price of \$2.99 per unit. In the "but-for" world where Cree removes the Accused Claims, demand for the product presumably falls and the retailer lowers the price to \$2.38 per unit. At that lower price, only four of the six consumers (A,B,C,D) now purchase the product. For those four consumers, damages are the difference between the actual price paid (\$2.99) and the market price without the Accused Claims (\$2.38)—i.e., \$0.61.<sup>41</sup> That is the "price premium" as defined by Plaintiff in his Class Motion.

<sup>41</sup> Boedeker Report, p. 17.

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27. Damages for the other two consumers (E,F) are not clear under this framework, since they choose not to purchase the product in the “but-for” world. Those consumers’ damages would depend on their actions in the “but-for” world, which in turn would depend on their preferences and the alternatives available to them. For example, suppose in the “but-for” world Consumer E would choose instead to buy a competing LED lightbulb. That consumer’s damages would depend on the different features and prices of the Accused Product relative to the alternative product, but certainly could be no more than the difference between the market price and that consumer’s willingness to pay for the product without the Accused Claims (\$1.21 in this example).<sup>42</sup> Similarly, damages for Consumer F are not identifiable from this framework, but could be no greater than \$1.82.<sup>43</sup>

28. This framework demonstrates two major problems with using a consumer survey to estimate damages in this type of case. First, a consumer survey only provides estimates of consumers’ willingness to pay for a product with a particular claim on the label relative to their willingness to pay for a similar product without that claim. In other words, a consumer survey only can provide information about how the “demand side” of the market might react to the removal of a particular label claim. A consumer survey cannot provide evidence of how the seller or its competitors would react in such an environment (“supply-side” factors). Since market prices are determined by the interaction of supply and demand, the “but-for” price (and therefore the “price premium”) cannot be determined from a consumer survey alone.

29. The literature by conjoint practitioners is clear on this point. For example, as noted in a paper presented jointly by several practitioners and academics at the Sawtooth Software Conference, a gathering organized by the company that produces the software used by Mr. Boedeker: “In the context of conjoint studies, feature valuation is achieved by using various

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<sup>42</sup> \$1.21 is the difference between the actual market price (\$2.99) and the price at which Consumer E would be willing to purchase the product without the Accused Claims (\$1.78).

<sup>43</sup> \$1.82 is the difference between the actual market price (\$2.99) and the price at which Consumer F would be willing to purchase the product without the Accused Claims (\$1.17).

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measures that relate only to the demand for the products and features and not to the supply.”<sup>44</sup> The authors state that estimates of consumer willingness to pay derived from conjoint surveys “do not take into account equilibrium adjustments in the market as one of the products is enhanced by addition of a feature” and further that “[c]omputation of changes in the market equilibrium due to feature enhancement of one product will be required to develop a measure of the economic value of the feature.”<sup>45</sup> The authors conclude that estimates based on consumer willingness to pay “will overstate the price premium afforded by feature enhancement.”<sup>46</sup>

30. The importance of addressing the supply side of the market can be seen by comparing the “price premium” evident in Figure 3, above, with the premium derived from a slightly different version of Mr. Boedeker’s stylized example, shown below in Figure 4. In this example, the supply curve is flat—i.e., the retailer chooses to charge the same amount for the product regardless of how many units are demanded by consumers. This situation could occur in a variety of retail scenarios. For example, if the seller utilizes the strategy of “line pricing,” then changing some of the features or the label of the product could have no impact on the retail price.<sup>47</sup> Another strategy that could result in no price change is the use of “price points,” whereby the seller chooses to maintain the price of a particular product at a specific figure, such as a price ending in “\$0.99,” even in the face of marketplace adjustments such as changes in costs or consumer demand.<sup>48</sup> More generally, a seller of a differentiated consumer product, such as a branded LED lightbulb, chooses its own pricing strategy.<sup>49</sup> Determining its

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<sup>44</sup> Greg Allenby, Jeff Brazell, John Howell, and Peter Rossi, “Using Conjoint Analysis to Determine the Market Value of Product Features,” in *Proceedings of the Sawtooth Software Conference*, October 2013, p. 343. See also, Greg Allenby, Jeff D. Brazell, John R. Howell, and Peter E. Rossi, “Valuation of Patented Product Features,” *The Journal of Law & Economics*, v. 57, n. 3, August 2014, pp. 629-663; and Greg Allenby, Jeff D. Brazell, John R. Howell, and Peter E. Rossi, “Economic Valuation of Product Features,” *Quantitative Marketing and Economics*, v. 12, n. 4, December 2014, pp. 421-456.

<sup>45</sup> Allenby, et. al (2013), pp. 346-347.

<sup>46</sup> Allenby, et. al (2013), p. 347.

<sup>47</sup> Line pricing is a common practice used by retailers, which involves offering different product “lines” at different prices while maintaining a single price for products within each “line.” [See, for example, Michaela Draganska and Dipak Jain, “Consumer Preferences and Product-Line Pricing Strategies: An Empirical Analysis,” *Marketing Science*, v. 25, n. 2, March 2006, pp. 164-174]

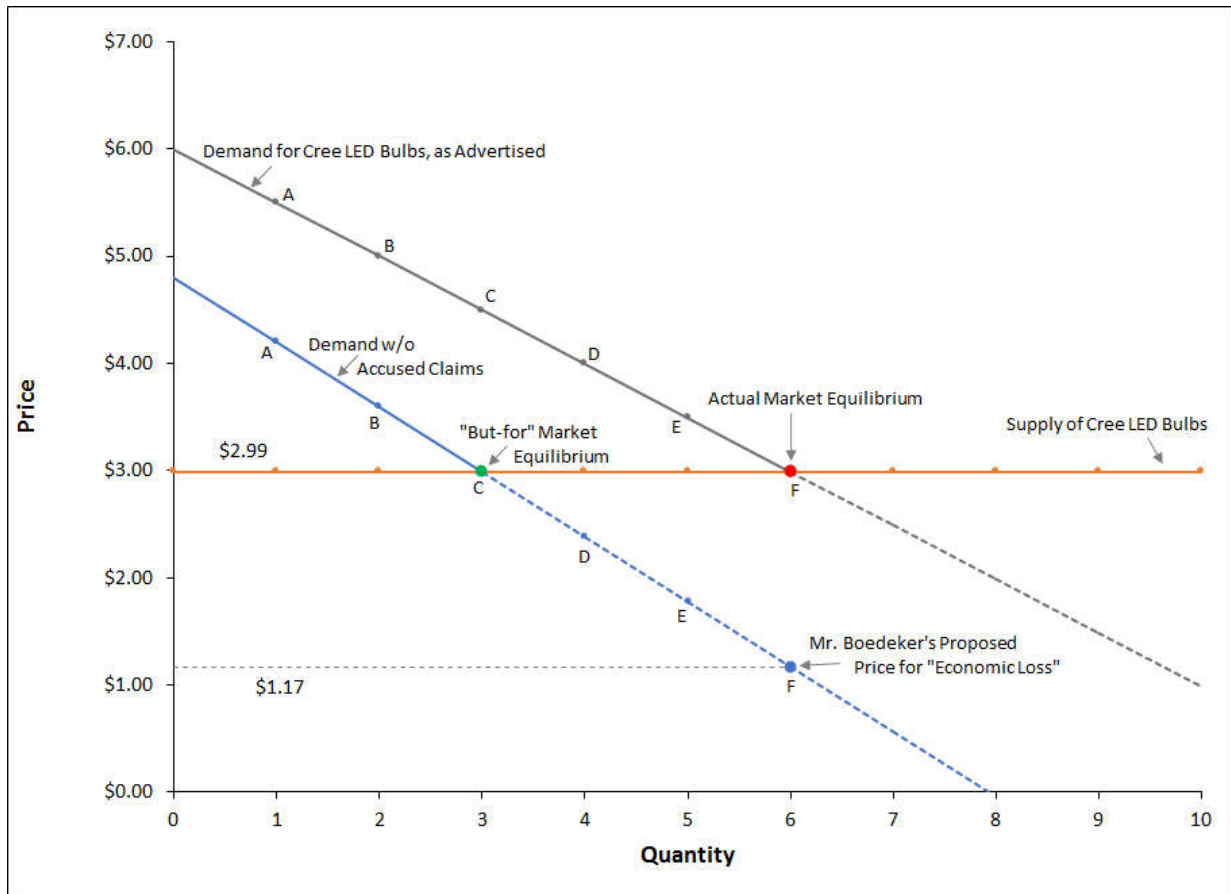
<sup>48</sup> See, for example, Daniel Levy, Dongwon Lee, Haipeng (Allan) Chen, Robert J. Kauffman, and Mark Bergen, “Price Points and Price Rigidity,” *The Review of Economics and Statistics*, v. 93, n. 4, November 2011, pp. 1417-1431.

<sup>49</sup> See, for example, Jean Tirole, *The Theory of Industrial Organization*, Cambridge, MA: The MIT Press, 1988, pp. 277-295.

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willingness to sell a product with and without particular label claims requires an assessment of that strategy and a prediction of the resulting marketplace outcome. As shown in Figure 4, given the sellers' strategy of maintaining price at a constant level, in the "but-for" world with the Accused Claims removed from the label, three consumers (A,B,C) would purchase the product at the market price. Since these consumers receive the same product and pay the same price in both the actual and "but-for" worlds, they suffered no damages and the "price premium" is zero. The examples in Figure 3 and Figure 4 show that the "price premium" depends on the seller's behavior, as well as the buyers', and therefore cannot be determined solely from a consumer survey.

**Figure 4**  
**Mr. Boedeker's Stylized Market Example, with a Horizontal Supply Curve**



Source: Boedeker Report, Figure 10 with annotations and horizontal supply curve.

31. The examples above illustrate a second critical problem with attempting to measure damages through just a consumer survey. As shown in both scenarios, in the "but-for" world

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some consumers would choose not to buy the Accused Product. Mr. Boedeker’s framework, however, provides no method either to identify those consumers among the universe of all consumers nor does it provide a method to assess their actual damages. For example, using the scenario in Figure 3, suppose in the “but-for” world Consumer E would choose instead to buy a competing LED lightbulb. That consumer’s damages would depend on the different features and prices of the Accused Product relative to the alternative product, but certainly could be no more than the difference between the market price and that consumer’s willingness to pay for the product without the Accused Claims (\$1.21 in this example). Similarly, suppose Consumer F would choose not to buy any LED lightbulb. It is unclear how one might assess that consumer’s damages, but again those damages could be no more than the difference between the market price and the consumer’s willingness to pay for the product without the Accused Claims (\$1.82 in this example). Thus, under a “price premium” theory, damages for some consumers could be as low as zero. For other consumers, damages could be no higher than the difference between the actual market price and their willingness to pay for the product without the Accused Claims, which would differ for each consumer. Moreover, since consumer behavior in the “but-for” world is not actually observed, there would be no way to determine the amount of damages to award to each consumer, absent individualized inquiries into their preferences, budget, available options, etc.

32. As an ostensible solution to these problems, Mr. Boedeker discards the “price premium” concept from his assessment of damages.<sup>50</sup> Instead, he proposes to award each member of the putative class an amount equal to the difference between the actual price and the lowest willingness to pay for the product without the Accused Claims among members of the putative class—i.e., the willingness to pay for Consumer F in the above examples, or \$1.82. This amount bears no relation to any marketplace outcome under conditions derived from real-world data. As justification for this approach, Mr. Boedeker asserts, “To fully compensate all consumers for their economic loss, it is necessary to find the price point on the demand curve that ensures that the same number of units that were sold in the actual world would also be sold

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<sup>50</sup> Despite Plaintiff’s assertion that he will measure damages based on “the difference between the prices customers paid and the value of the [Bulbs] they bought,” which Plaintiff terms a “price premium,” the only reference to that term in Mr. Boedeker’s report is a single quote from Plaintiff’s Complaint. [Class Motion, p. 20]

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in the but-for-world.”<sup>51</sup> Here, Mr. Boedeker has invented a new concept of the “but-for” world. Instead of representing the marketplace outcome that would occur if the seller removed the Accused Claims from the product, Mr. Boedeker has redefined the “but-for” world to be a scenario in which the seller is forced to lower the price of the product in order to assure the same amount of sales as in the actual world. Mr. Boedeker does not identify any real-world conditions that would cause such an outcome. Rather, his approach appears to be based simply on convenience. Referring to his stylized example, shown in Figure 3 above, Mr. Boedeker acknowledges that four of the six consumers could be made whole with a damages award equal to the “price premium” of \$0.61.<sup>52</sup> He then asserts that, because that amount “does not compensate *all* purchasers,” he therefore must identify a larger number that is sufficient to do so.<sup>53</sup>

33. The obvious problem with Mr. Boedeker’s approach is that it necessarily results in awards that exceed actual damages for many, if not all, consumers. If, as shown in Mr. Boedeker’s example (Figure 3, above), some consumers paid a “price premium” of \$0.61 (Consumers A-D), then an award of \$1.82 does not “compensate” those consumers for their damages—it “overcompensates” them. The \$1.82 figure also overcompensates Consumer E, whose maximum potential damages equal \$1.21 as discussed above. Finally, even for Consumer F \$1.82 represents the *maximum* potential damages. Actual damages could be less, depending on Consumer F’s behavior in the “but-for” world. Thus, Mr. Boedeker proposes a method that is guaranteed to overcompensate some members of the putative class, and potentially may overcompensate all of them.

## VI. MR. BOEDEKER’S SURVEY DOES NOT ADDRESS PLAINTIFF’S CLAIMS

34. Plaintiff asserts that Cree’s products are labeled with false and/or misleading claims related to the “longevity” of the lightbulbs and the energy savings that relate to longevity. For example, the Complaint alleges:<sup>54</sup>

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<sup>51</sup> Boedeker Report, p. 18.

<sup>52</sup> Boedeker Report, p. 18.

<sup>53</sup> Boedeker Report, p. 18 (emphasis added).

<sup>54</sup> Complaint, ¶4.

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Cree’s packaging offers a “100% Satisfaction Guarantee” for LED Bulbs and an estimated lifetime of between 15-32 years depending on the product. The packages further offer an estimated yearly energy cost savings ranging from around \$0.60 to \$2 per bulb per year. Cree packaging also offers a “10 Year Warranty.”

Similarly, the Class Motion alleges:<sup>55</sup>

[A]ll Cree LED Lightbulbs...are marketed and labeled to highlight the following characteristics focused on longevity of the Bulbs: (1) a promise that they will last longer than the comparative incandescent bulb, which therefore results in energy and cost savings; and (2) a warranty for performance, which reinforces the longevity representations.

Notwithstanding the variety of allegations, Plaintiff proposes to evaluate a single issue with respect to liability—namely, whether Cree’s label claims “promise longevity far longer that the Bulbs actually last.”<sup>56</sup>

35. However, the statements tested by Mr. Boedeker in his conjoint survey correspond neither to the components of Plaintiff’s claims remaining after the Court’s exclusions nor to the single issue Plaintiff proposes to evaluate with respect to liability. As a result, even setting aside the fundamental problems with his proposed framework for assessing damages, described above, Mr. Boedeker’s opinions cannot serve as a basis for determining whether members of the putative class suffered damages at all, let alone provide a measurement of the amount of class-wide damages. Furthermore, as described in Section III.A, above, some of the claims accused by Plaintiff were not present on all the Accused Products. Mr. Boedeker, however, provides only a single survey with a single set of results, which he puts forward as a method to assess class-wide damages. He provides no method to determine which members of the putative class purchased products which contained the different versions of the Accused Claims.

36. Mr. Boedeker evaluates three attributes in his survey that relate to the performance of the Accused Products. The first is the presence or absence of the statement “[t]he LED light bulb will last six times longer than cheap LED bulbs.”<sup>57</sup> I understand, however, that statement

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<sup>55</sup> Class Motion, p. 3.

<sup>56</sup> Class Motion, p. 5.

<sup>57</sup> Boedeker Report, pp. 58-59 and supporting document “LED Conjoint Survey.docx”.

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never was present on the package of the Accused Products.<sup>58</sup> Moreover, Mr. Boedeker performs no analysis to determine the extent to which members of the putative class had any exposure to that claim, and therefore cannot evaluate whether that claim could have influenced their willingness to pay for the Accused Products. Thus, there is no basis to allege, as Mr. Boedeker does, that his estimated “attribute value” or “economic loss” associated with that feature has any relation to consumers’ damages, even under his stated framework.

37. Second, Mr. Boedeker includes a product attribute described as “Lasts XX+ years (XX hours) with estimated lifetime savings of \$XX over incandescent bulbs” (with four different sets of values for the “XX”).<sup>59</sup> In his Class Motion, Plaintiff cites Mr. Boedeker’s survey results for this feature as providing measurements of “the economic loss attributable to the purchase of the falsely labeled Bulbs.”<sup>60</sup> However, as described in the Court’s April 2018 Order, the first half of the claim providing an explicit longevity estimate—“Lasts XX+ years (XX hours)” —cannot be subject to liability, since it simply reiterates or presents in a substantially similar manner the disclosures required under the EPCA that are present in the Lighting Facts box.<sup>61</sup> Since Mr. Boedeker does not test the latter half of the claim alone, his estimated “attribute value” or “economic loss” associated with that feature cannot be used as a basis for assessing damages.

38. Finally, Mr. Boedeker tests a feature related to a warranty. Specifically, he tests the claim of a “10-year 100% satisfaction guarantee” versus two alternatives (“standard 90-day warranty” and “10 years with original receipt and packaging, have to pay for shipment”).<sup>62</sup> In his Class Motion, Plaintiff asserts that the “satisfaction guarantee” claim “reinforces the

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<sup>58</sup> In deposition, Mr. Boedeker testified that his awareness of that claim was based on the Court’s April 2018 Order, which notes that claim is shown on Cree’s website. [Deposition of Stefan Boedeker, March 12, 2019 (“Boedeker Deposition”), pp. 75-78, citing April 2018 Order, p. 10] None of the 50+ labels that I reviewed contained this statement.

<sup>59</sup> Boedeker Report, pp. 58-59 and supporting document “LED Conjoint Survey.docx”.

<sup>60</sup> Class Motion, p. 20.

<sup>61</sup> See, Section III.B.

<sup>62</sup> Boedeker Report, pp. 58-59 and supporting document “LED Conjoint Survey.docx”.

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longevity promises.”<sup>63</sup> However, there are multiple problems with the use of this attribute to assess class-wide damages.

39. First, it is clear from an examination of various product packages that claims related to a warranty or “satisfaction guarantee” differed substantially across the Accused Products. One package identified by Plaintiff contains the claim of “100% Satisfaction Guaranteed.”<sup>64</sup> Many other labels do not contain that claim, but contain other claims related to the warranty, including:

- “5 YEAR WARRANTY” and “LIMITED WARRANTY: This product has a 5 year, free replacement warranty. If this product does not operate for 5 years...return the product with UPC code proof of purchase, register receipt and your name and address to Cree...Cree will send you a replacement or at Cree’s option refund the original purchase price”;<sup>65</sup>
- “5 YEAR WARRANTY” and “LIMITED WARRANTY: If this bulb does not operate for 10 years (based on 6 hours per day / 7 days per week of normal consumer use)... return the bulb with proof of purchase, register receipt and your name and address to Cree...Cree will send you a replacement or at Cree’s option refund the original purchase price”;<sup>66</sup> and
- “10 YEAR WARRANTY” and “LIMITED WARRANTY: If this bulb does not operate for 10 years (based on 6 hours per day / 7 days per week of normal consumer use)...return the bulb with proof of purchase, register receipt and your name and address to Cree...Cree will send you a replacement or at Cree’s option refund the original purchase price.”<sup>67</sup>

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<sup>63</sup> Class Motion, p. 4. In deposition, Mr. Boedeker also asserted that the “satisfaction guarantee” claim was an “indication of longevity.” [Boedeker Deposition, pp. 70-71]

<sup>64</sup> Complaint, ¶18; and Boedeker Report, p. 4. These package versions have additional claims in fine print which are not readable as presented.

<sup>65</sup> CREE\_00062461 and CREE\_00065370.

<sup>66</sup> CREE\_00065190 and CREE\_00065201.

<sup>67</sup> CREE\_00060645 and CREE\_00065185.

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As above, however, Mr. Boedeker does not test these specific representations and further provides no methodology for assessing which members of the putative class purchased products with which representations, or even the overall frequency of each representation across all the Accused Products. Mr. Boedeker's method therefore cannot determine the extent to which those representations may have affected class-wide willingness to pay.

40. Second, despite the assertions by Plaintiff and Mr. Boedeker, it is unclear to what extent the label statements about a warranty or a "satisfaction guarantee" have any relation to the perceived longevity of the Accused Products. Plaintiff asserts that he will be able to demonstrate that the Accused Products did not offer the longevity that was "promised" by Cree.<sup>68</sup> Plaintiff, however, does not offer a class-wide method (or even assert that he will do so) to assess whether Cree failed to comply with the stated warranties on the products or whether consumers did not have "satisfaction guaranteed." Thus, Mr. Boedeker's analysis of the "economic loss" associated with the "satisfaction guaranteed" claim does not correspond with any theory of liability put forward by Plaintiff.

41. In sum, the only common representations about "longevity" evaluated by Mr. Boedeker are ones that have been excluded from this case by the Court. The other claims that he evaluates are unrelated to Plaintiff's assertions about a common proof of liability and/or were not present on any (or at least some) of the Accused Products. Mr. Boedeker's proposed approach therefore fails to provide a class-wide method for assessing damages related to Plaintiff's specific allegations.

## **VII. MR. BOEDEKER'S USE OF HIS SURVEY RESULTS DOES NOT COMPORT WITH HIS OWN FRAMEWORK FOR DAMAGES**

42. In addition to the basic problems with his proposed framework and the lack of correspondence between his survey and Plaintiff's theory of liability, Mr. Boedeker's approach suffers from a further, critical flaw. The "market simulations" that he performs using his survey results do not provide the data that he claims he needs to fulfill his theoretical framework for damages. Consequently, Mr. Boedeker's methodology does not provide a valid

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<sup>68</sup> Class Motion, pp. 5-6.

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basis for assessing class-wide damages, even setting aside the other problems with his approach, described above.

43. In the section of his report in which he lays out his proposed damages framework, Mr. Boedeker states that for his damages approach “it is necessary to find the price point on the demand curve that ensures that the same number of units that were sold in the actual world would also be sold in the but-for-world.”<sup>69</sup> He then proposes to compare that price to the actual price paid by members of the putative class. Mr. Boedeker states that “[t]he difference between these two prices is the economic loss to every member of the putative class.”<sup>70</sup> Figure 5 shows an example of Mr. Boedeker’s calculations, as presented in his report, which he uses to purportedly fulfil the requirements of his proposed framework. This example shows the estimated share of survey respondents who would buy one of the hypothetical products presented in the survey with and without the “Longevity Claims” at each of the five price points tested.<sup>71</sup> The vertical arrows represent the “economic loss” calculated for each of the resulting ten combinations of price points and “Longevity Claims.” For the example in Figure 5, the values for Mr. Boedeker’s “economic loss” range from \$1.40 to \$4.47. Mr. Boedeker performed similar calculations for products comprised of every possible set of hypothetical attributes included in his survey. He then calculated the range of “economic losses” from all those combinations, excluding the outlying 10-percent values, and the median value. For the hypothetical 60W product, Mr. Boedeker calculated the “economic loss” to range from \$1.34 to \$4.01, with a median value of \$2.40.<sup>72</sup>

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<sup>69</sup> Boedeker Report, p. 20.

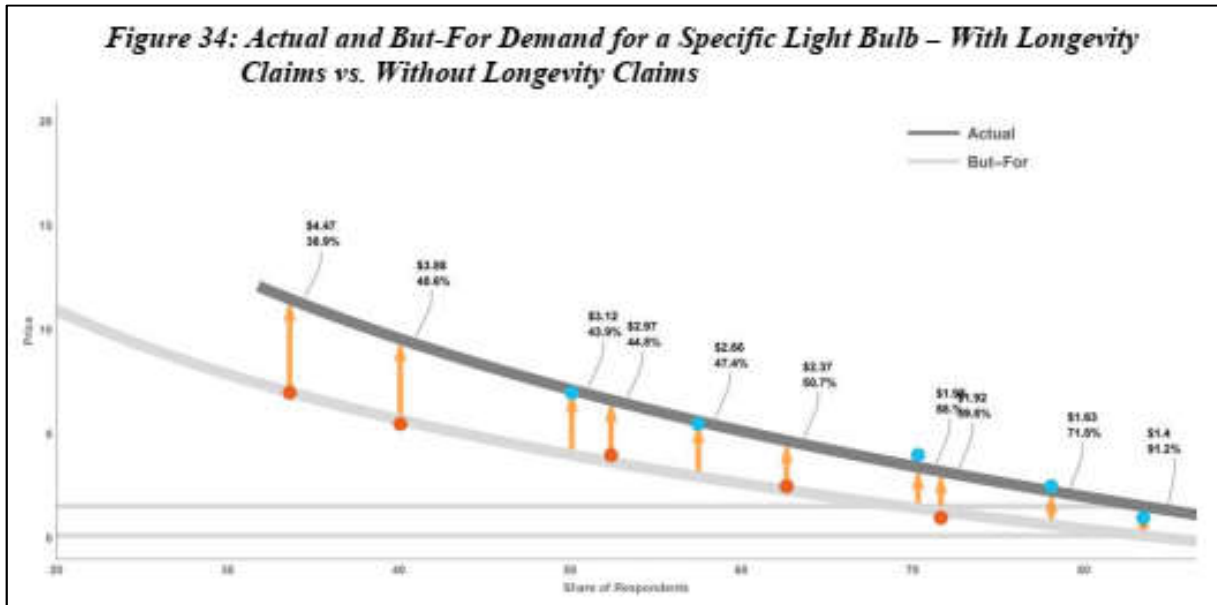
<sup>70</sup> Boedeker Report, p. 20.

<sup>71</sup> In this example, “with the Longevity Claims” represents a hypothetical 60W product with the label claim “lasts 31+ years (35,000 hours) with estimated lifetime savings of \$192.50 over incandescent bulbs.” “Without the Longevity Claims” represents the same hypothetical 60W product with the label claim “lasts 4+ years (5,000 hours), with estimated lifetime savings of \$27.50 over incandescent bulbs.” [Boedeker Report, pp. 71-73 and supporting materials]

<sup>72</sup> Boedeker Report, p. 72.

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**Figure 5**  
**Mr. Boedeker’s “Demand Curves,” Based on Survey Results for One Product Specification**



Source: Boedeker Report, Figure 34.

44. There are two general categories of problems with this approach. First, Mr. Boedeker’s approach does not calculate actual marketplace demand curves for the Accused Products. A demand curve represents the number of units of a product consumers are collectively willing to purchase at each price point. As described above, when presenting his theoretical “model for economic loss,” Mr. Boedeker states that he will calculate damages by “moving down the demand curve in the but-for-world to the point of volume sold in the actual world.”<sup>73</sup> Mr. Boedeker’s actual calculations, however, bear no relation to the “volume sold in the actual world,” nor do they relate to consumer demand for the actual products at issue. Instead, as shown in Figure 5, Mr. Boedeker calculates the *share of survey respondents* who would purchase *hypothetical products* as represented in his survey at different price points. Mr. Boedeker performs no analysis to determine whether the “share of respondents” measured through his approach corresponds to any actual share in the marketplace or whether the survey respondents’ demand for the hypothetical products in the survey corresponds to actual consumers’ demand for the Accused Products.

<sup>73</sup> Boedeker Report, p. 18.

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45. The literature on conjoint analysis makes clear that the results of conjoint surveys cannot be interpreted as statements about actual market shares and generally cautions against using the results of conjoint surveys to make specific predictions about consumer demand. For example, Bryan Orme, the founder of Sawtooth Software and cited multiple times by Mr. Boedeker, states in his book Getting Started with Conjoint Analysis:<sup>74</sup>

Conjoint models do not predict market share...

Believing that we have an accurate predictor of market share can lead us to misuse a model. That said, conjoint models are excellent directional indicators. Conjoint analysis can reveal product modifications that can increase market share, but it will probably not reveal how much actual market share will increase. Conjoint analysis can tell us that the market is more price sensitive for Brand *A* than Brand *B*; but we probably do not know the exact price sensitivity of either one. Conjoint analysis can identify which market segment will be most likely to purchase your client's product, but probably not the exact number of units that will be purchased.

The market simulator is usually the most anticipated deliverable for managers. Do not let this enthusiasm get out of hand. Conjoint simulators are directional indicators that can provide a great deal of information about relative feature importances and preferences for product configurations. While conjoint simulators are excellent tools for revealing strategic moves that can improve the success of a product, they are not infallible market share predictors. Many other factors, such as awareness, distribution, advertising, and product life cycles, drive market share in the real world. Conjoint models can be fine-tuned to account partially for these elements, but we must avoid thinking that adjusted conjoint models can consistently and accurately predict volumetric absolutes such as market share. The only exception to this rule follows from careful validation based on real sales data, establishing a clear link between the calibrated conjoint model and sales volume for the specific product category and market in question.

In contrast to the guidance from Mr. Orme, Mr. Boedeker uses conjoint analysis not for “directional indicators,” but rather to make specific predictions about purchasing behavior and price sensitivity.

46. Mr. Orme further describes various reasons why conjoint surveys may not accurately predict marketplace behavior including “awareness [of actual purchasers] developed through advertising and promotion,” whether “the relevant attributes have been included in the

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<sup>74</sup> Bryan K. Orme, Getting Started with Conjoint Analysis: Strategies for Pricing Research, 3<sup>rd</sup> ed., Madison: Research Publishers LLC, 2014, pp. 26-27.

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simulation model,” whether “respondents are educated about available brands,” and many other reasons.<sup>75</sup> Similarly, another book cited by Mr. Boedeker describes the importance of modeling actual products available in the marketplace when attempting to predict consumer demand:<sup>76</sup>

...if our interest is to predict the market demand for a modified product, the set of items will be the modified product and all other items in the market (except, of course, for the old product before modification). If the interest is in predicting the demand for a new item, the set of items will be the items currently on the market plus the new item.

Mr. Boedeker, however, makes no attempt to include specific products available on the market or actual brand information. Instead he tests hypothetical products comprised of only six features presented in text format, omitting brand and the physical product entirely. As noted by Mr. Orme, above, “careful validation based on real sales data” can potentially improve the accuracy of conjoint analysis for predictions of marketplace behavior; yet, Mr. Boedeker performs no such validation. Many other conjoint practitioners as well as academics caution against interpreting results from individual conjoint studies as predictions of marketplace behavior absent any validation against external data.<sup>77</sup>

47. A second problem with Mr. Boedeker’s approach relates to the range of results from his calculations. Even if his survey produced representations of true marketplace demand for the Accused Products (which it does not), he still provides no method for determining the point on

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<sup>75</sup> Orme (2014), pp. 26 and 92.

<sup>76</sup> Vithala R. Rao, Applied Conjoint Analysis, Berlin: Springer-Verlag, 2014, p. 99.

<sup>77</sup> See, for example, Min Ding, Rajdeep Grewal, and John Liechty, “Incentive-Aligned Conjoint Analysis,” *Journal of Marketing Research*, v. 42, February 2005, pp. 67-82 at 67 (“Because most conjoint studies are conducted in hypothetical situations with no consumption consequences for the participants, the extent to which the studies are able to uncover ‘true’ consumer preference structures is questionable.”); Andrew Goett, Kathleen Hudson, and Kenneth Train, “Customers’ Choice Among Retail Energy Suppliers: The Willingness-to-Pay for Service Attributes,” *The Energy Journal*, v. 21, n. 4, 2000, pp. 1-28 at p. 27 (“In choice experiments, customers can have a tendency to de-emphasize price, since they do not have to actually pay the price. This deemphasis, to the extent that it exists, creates an upward bias in the estimated willingness to pay for non-price attributes.”); and Chris Chapman, “9 Things Clients Get Wrong About Conjoint Analysis,” in Proceedings of the Sawtooth Software Conference, October 2013 (“...preference share is only partially indicative of real market results... If we iterate studies, know that we’re assessing the right things, calibrate to the market, and include other effects, we will get progressively better estimates of the likely market response. [Conjoint Analysis] is a fundamental part of that, yet only one part. Yes, we can predict market share (sometimes)! But an isolated, single-shot [Conjoint Analysis] is not likely to do so very well.”)

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those demand curves that corresponds to “the volume sold in the actual world,” which is what he claims he will do when he sets forth his “model for economic loss.” Mr. Boedeker acknowledged this point in his deposition, referring to his results by stating that “it’s not units sold in the market because I don’t have that number.”<sup>78</sup> Yet “units sold in the market” is precisely the measure needed to fulfill the requirement for his theoretical framework for damages. The example from Mr. Boedeker’s results, shown in Figure 5 above, demonstrates the problem. In that example alone (one of hundreds evaluated by Mr. Boedeker), the distance between the two “demand curves” ranges from \$1.40 to \$4.47. Yet Mr. Boedeker provides no method to determine which value in that range might correspond to the class-wide damage amount in this case. Instead of identifying the actual “economic loss,” based on his own theory, he simply calculates *all possible* values for that figure, based on “all possible permutations” of features and price points and the entire range of respondent shares. He then reports a “median economic loss” and a range of values after eliminating 10 percent of the outlier values. He asserts that “in the merits phase of this case” the median value “can be applied to the number of light bulbs that were sold with the false Longevity Claims to assess class-wide economic losses.”<sup>79</sup> Mr. Boedeker, however, provides no analysis to determine whether the “median economic loss” calculated from his survey relates in any way to the specific figure represented by the distance between two demand curves from the real-world marketplace, as shown in Figure 2, above. Given the wide range of values derived from his survey, the “median economic loss” as calculated by Mr. Boedeker could be substantially different from the “economic loss” specified in his theoretical model.

48. In summary, Mr. Boedeker’s survey and the calculations he performs on the results of that survey do not provide the data required by his theoretical model. Thus, even if that model were appropriate (which it is not) and his survey adequately modeled real-world behavior (which it does not), Mr. Boedeker’s methodology still does not provide a valid basis for assessing class-wide damages.

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<sup>78</sup> Boedeker Deposition, p. 197.

<sup>79</sup> Boedeker Report, p. 77.

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**VIII. PLAINTIFF PROVIDES NO EVIDENCE OF ANY “PRICE PREMIUM” FOR THE ACCUSED CLAIMS AND CREE’S BUSINESS STRATEGY INDICATES THERE WAS NONE**

49. Plaintiff claims that he will demonstrate that all members of the putative class suffered damages in the form of a “price premium,” which he describes as “the difference between the prices customers paid and the value of the [Bulbs] they bought.”<sup>80</sup> As I describe above, Mr. Boedeker explicitly disclaims that his proposed approach would measure this amount. Since he performs no analysis of the “supply side” of the marketplace, the results from his survey alone cannot be used to predict prices in the “but-for” scenario. Thus, Plaintiff has neither provided an estimate of any purported “price premium” in the market due to the Accused Claims, nor has he even identified any method to determine whether such a premium existed. Nonetheless, given Plaintiff’s stated theory of damages as expressed in his Complaint and Class Motion, I have been asked to assess whether the evidence supports a conclusion that members of the putative class did pay a “price premium.” To the contrary, I find that the evidence supports a conclusion of *no* price premium due to the Accused Claims.

50. To understand Cree’s approach to marketing and pricing its products, I conducted an interview with Scott Schwab, currently Cree’s Vice President and General Manager, Lamps. Mr. Schwab described the process by which Cree has packaged and priced its LED lightbulb products. First, he described the factors that Cree considers when setting the prices of its products.<sup>81</sup> Those factors include competitors’ pricing,<sup>82</sup> Cree’s costs to manufacture the products,<sup>83</sup> and negotiations with customers, primarily The Home Depot.<sup>84</sup> In addition, Cree sets its wholesale prices in a manner such that The Home Depot can charge specific “price points,” for example prices ending in “\$0.97,” and still generate the required margins.<sup>85</sup> Mr. Schwab further described how the Cree personnel who design the product labels and packaging

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<sup>80</sup> Class Motion, p. 20.

<sup>81</sup> See also, Schwab Deposition, pp. 28-30.

<sup>82</sup> See also, CREE\_02166967, CREE\_01762500, and CREE\_02225262.

<sup>83</sup> See also, CREE\_02166974 and CREE\_02166975.

<sup>84</sup> See also, CREE\_02338377 and CREE\_02338378.

<sup>85</sup> See also, CREE\_02338377, CREE\_02338378, CREE\_02166974, CREE\_02166975, and Outlook file, “RE Volume estimates on 60W.msg” with Excel attachment, “THD Pricing 2.xlsx.”

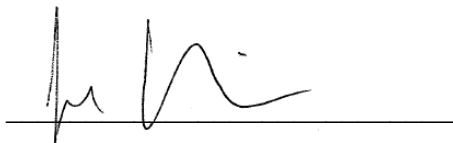
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are different from those who are responsible for negotiations with Cree’s customers and determining pricing.

51. Based on this information, there is no reason to expect that changes to the specific wording on the packages of Cree’s LED lightbulb products would lead to any change in the prices that Cree or the retailers set for the Accused Products. As described above, Cree has used a variety of claims on the labels of its products, which differ across products and have changed over time. I have seen no evidence that Cree ever adjusted its pricing to account for differences in labels between products or changes in labels over time.

52. Internal strategy documents from Cree support this conclusion. For example, an analysis by Cree in late-2013, which included a roadmap for the company’s future strategy, highlighted the fact that customers’ primary issue in choosing an LED lightbulb was the desire for a product that “Looks and Works like a Light Bulb” and that, given that characteristic, “price is key” “regardless of payback economics.”<sup>86</sup> These characteristics of consumer demand support Cree’s strategy, which has not focused on differentiation from the competition related to specific performance claims, but rather has focused on continuing to drop prices to match competitors while reducing costs.<sup>87</sup> In fact, in their presentations of Cree’s strategies, these documents do not reference any specific label claims on Cree’s packages.

53. Based on this information, I conclude that there is no evidence Cree would have adjusted its prices in the “but-for” world where it could not include the Accused Claims on the labels of the Accused Products; and there is considerable evidence Cree would not have done so. As such, there is no support in the record for any “price premium” associated with the Accused Claims.



Jesse David, Ph.D.  
March 22, 2019

<sup>86</sup> CREE\_02214029, at pp. 9, 10, and 12. See also, CREE\_00061752 – 758 at 757 and CREE\_00055006 – 030 at 014 and 018.

<sup>87</sup> CREE\_02214029, at pp. 13-14. See also, CREE\_01762500.

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## **APPENDIX 1: MATERIALS CONSIDERED**

### **Case Documents**

Order Re: Motion to Dismiss, April 9, 2018

Amended Class Action Complaint, April 30, 2018

Expert Report of Stefan Boedeker in Support of Plaintiff's Motion for Class Certification, January 18, 2019, with supporting materials

Order Granting in Part and Denying in Part Defendant's Motion to Strike Deposition Errata, January 18, 2019

Plaintiff's Memorandum of Law in Support of Motion for Class Certification, May 28, 2019

### **Deposition Transcripts**

Deposition of Jeffry L. Young, September 18, 2018, with Exhibits 1-5 and errata

Deposition of Jonathan Vollers, October 8, 2018, with Exhibits 1-10 and errata

Deposition of Scott Schwab, January 4, 2019, with Exhibits 1-19 and errata

Deposition of Stefan Boedeker, March 12, 2019, with errata

### **Bates Numbered Documents**

CREE_00049110 – 149	CREE_00062461
CREE_00054132 – 136	CREE_00063185 – 224
CREE_00054138 – 139	CREE_00064021
CREE_00054538 – 563	CREE_00064032
CREE_00055005 – 055	CREE_00064034
CREE_00055520	CREE_00064037
CREE_00058447 – 448	CREE_00064719 – 721
CREE_00060645 – 647	CREE_00064760 – 762
CREE_00060650	CREE_00064765 – 766
CREE_00060653	CREE_00065183
CREE_00060656	CREE_00065188
CREE_00060659	CREE_00065190
CREE_00061437	CREE_00065193
CREE_00061442	CREE_00065195
CREE_00061751 – 758	CREE_00065199
CREE_00062367 – 368	CREE_00065201
CREE_00062405 – 406	CREE_00065204
CREE_00062414	CREE_00065206
CREE_00062459	CREE_00065210 – 211

OUTSIDE COUNSEL ONLY – SUBJECT TO PROTECTIVE ORDER

CREE_00065369 – 372	CREE_02214029
CREE_00065376 – 379	CREE_02214381 – 382
CREE_00064855	CREE_02215835
CREE_00064858	CREE_02222005
CREE_00064860	CREE_02222227
CREE_00065185	CREE_02225262
CREE_00070633	CREE_02314075
CREE_01762499 – 500	CREE_02315341
CREE_02165616	CREE_02338377 – 378
CREE_02168250 – 251	CREE_02417861 – 862
CREE_02166939 – 942	CREE_02442681
CREE_02166967 – 970	CREE_02446416
CREE_02166974 – 977	CREE_02450683
CREE_02180460 – 461	THD-CREE000001
CREE_02200417	

**Additional Discovery Materials from Cree (no Bates #)**

Outlook file, “RE Volume estimates on 60W.msg” with Excel attachment, “THD Pricing 2.xlsx”

**Publicly Available Documents**

Andrew Goett, Kathleen Hudson, and Kenneth Train, “Customers’ Choice Among Retail Energy Suppliers: The Willingness-to-Pay for Service Attributes,” *The Energy Journal*, v. 21, n. 4, 2000, pp. 1-28

Bryan K. Orme, Getting Started with Conjoint Analysis: Strategies for Product Design and Pricing Research, 3<sup>rd</sup> ed., Manhattan Beach, CA: Research Publishers LLC, 2014

Chris Chapman, “9 Things Clients Get Wrong About Conjoint Analysis,” in Proceedings of the Sawtooth Software Conference, October 2013

Cree 2018 Annual Report

Daniel Levy, Dongwon Lee, Haipeng (Allan) Chen, Robert J. Kauffman, and Mark Bergen, “Price Points and Price Rigidity,” *The Review of Economics and Statistics*, v. 93, n. 4, November 2011, pp. 1417-1431

Federal Judicial Center, Reference Manual on Scientific Evidence, 3<sup>rd</sup> ed., Washington, D.C.: National Academies Press, 2011

Greg Allenby, Jeff Brazell, John Howell, and Peter Rossi, “Using Conjoint Analysis to Determine the Market Value of Product Features,” in Proceedings of the Sawtooth Software Conference, October 2013

Greg Allenby, Jeff D. Brazell, John R. Howell, and Peter E. Rossi, “Economic Valuation of Product Features,” *Quantitative Marketing and Economics*, v. 12, n. 4, December 2014, pp. 421-456

OUTSIDE COUNSEL ONLY – SUBJECT TO PROTECTIVE ORDER

Greg Allenby, Jeff D. Brazell, John R. Howell, and Peter E. Rossi, “Valuation of Patented Product Features,” *The Journal of Law & Economics*, v. 57, n. 3, August 2014, pp. 629-663

Jean Tirole, *The Theory of Industrial Organization*, Cambridge, MA: The MIT Press, 1988

Michaela Draganska and Dipak Jain, “Consumer Preferences and Product-Line Pricing Strategies: An Empirical Analysis,” *Marketing Science*, v. 25, n. 2, March 2006, pp. 164-174

Min Ding, Rajdeep Grewal, and John Liechty, “Incentive-Aligned Conjoint Analysis,” *Journal of Marketing Research*, v. 42, February 2005, pp. 67-82

Vithala R. Rao, *Applied Conjoint Analysis*, Berlin: Springer-Verlag, 2014

### **Websites**

Cree:

[creebulb.com](http://creebulb.com)

[creebulb.com/products](http://creebulb.com/products)

[creebulb.com/40-watt-replacement-soft-white](http://creebulb.com/40-watt-replacement-soft-white)

U.S. Department of Energy:

[www.energy.gov/energysaver/save-electricity-and-fuel/lighting-choices-save-you-money/how-energy-efficient-light](http://www.energy.gov/energysaver/save-electricity-and-fuel/lighting-choices-save-you-money/how-energy-efficient-light)

U.S. Federal Trade Commission:

[www.ftc.gov/tips-advice/business-center/guidance/ftc-lighting-facts-label-questions-answers-manufacturers](http://www.ftc.gov/tips-advice/business-center/guidance/ftc-lighting-facts-label-questions-answers-manufacturers)

**APPENDIX 2: CURRICULUM VITAE OF JESSE DAVID, PH.D.**



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Pasadena, CA 91101  
626-657-7950  
j david@edgewortheconomics.com

### **Jesse David, Ph.D.**

Jesse David is President of Edgeworth Economics and head of Edgeworth's Los Angeles office. Dr. David is an expert on the valuation of intangible assets, market definition, and the assessment of economic impacts in complex commercial disputes and regulatory proceedings. His experience spans intellectual property, antitrust, labor, regulatory, and class certification matters, among other economic issues related to the intersection of business and government.

Dr. David has provided economic consulting and expert testimony for many industries, including pharmaceuticals, telecommunications, agricultural products, finance, petroleum products, chemicals, software, and consumer products. He frequently submits expert reports to and testifies before decision-making bodies, including U.S. federal and state courts, the Federal Energy Regulatory Commission, the National Energy Board of Canada, and various arbitration venues.

Dr. David's consulting practice also includes developing cost-benefit analyses of government regulations and assessing the economic impacts of government policies and other changes in industry structure. Dr. David has prepared studies for entities such as the American Trucking Association, the National Football League Players Association, the San Diego County Water Authority, the New York Power Authority, and the Ocean Conservancy.

### **EDUCATION**

Stanford University  
Ph.D., Economics, 2000

Brandeis University  
B.A., *magna cum laude*, Economics and Physics, 1991

### **EMPLOYMENT**

Edgeworth Economics, LLC, Washington, D.C.  
2019 - present, President  
2012 - 2018, Partner  
2009 - 2012, Senior Vice President

Criterion Economics, LLC, Washington, D.C.  
2009, Senior Vice President

National Economic Research Associates, Inc., White Plains, NY  
2004 - 2009 Vice President  
2000 - 2004 Senior Consultant  
1997 - 1999 Senior Analyst

Stanford University, Palo Alto, CA  
1993 - 1995 Research Assistant/Teaching Assistant

## TESTIMONY AND EXPERT REPORTS

*Sylvia Leyva v. NFI Industries Inc.*, Superior Court of the State of California for the County of San Bernardino, Central District. Deposition, February 15, 2019.

*Amphastar Pharmaceuticals, Inc. and International Medication Systems, Ltd. v. Momenta Pharmaceuticals, Inc. and Sandoz, Inc.*, U.S. District Court for the District of Massachusetts. Expert reports, December 21, 2018; February 15, 2019; and March 15, 2019.

*Entrata, Inc. v. Yardi Systems, Inc.*, U.S. District Court for the District of Utah, Central Division. Expert report, December 7, 2018.

*Entrata, Inc. v. Yardi Systems, Inc.*, U.S. District Court for the District of Utah, Central Division. Expert reports, December 7, 2018 and February 8, 2019; deposition, February 20, 2019.

*POET, LLC, et al. v. Nelson Engineering, Inc., et al.*, U.S. District Court for the District of South Dakota, Southern Division. Expert reports, September 28, 2018 and November 28, 2018; deposition, January 8, 2019.

*Evert Fresh, Inc. v. Housewares America, Inc.*, U.S. District Court for the District of New Jersey. Expert reports, June 4, 2018 and July 17, 2018.

*Rosa Alvarez v. NBTY, Inc. and Nature's Bounty, Inc.*, U.S. District Court for the Southern District of California. Expert report, June 1, 2018; deposition, September 4, 2018.

*Bal Seal Engineering, Inc. v. Nelson Products, Inc., et al.*, U.S. District Court for the Central District of California. Expert reports, May 7, 2018 and June 5, 2018; deposition, July 27, 2018.

*XY, LLC, Beckman Coulter, Inc. and Inguran, LLC d/b/a STgenetics v. Trans Ova Genetics, LC*, U.S. District Court for the District of Colorado. Expert report, April 13, 2018; deposition, June 6, 2018.

*Sandra Bond v. Berkshire Bank and Berkshire Hills Bancorp*, U.S. District Court for the District of Massachusetts. Expert report, November 21, 2017; deposition, January 16, 2018; affidavit, August 13, 2018.

*DSM IP Assets, B.V. and DSM Bio-Based Products & Services, B.V. v. Lallemand Specialties, Inc. and Mascoma LLC*, U.S. District Court for the Western District of Wisconsin. Expert report, November 21, 2017; deposition, December 14, 2017; trial testimony, May 11 and 14, 2018; declaration, June 20, 2018.

*Abbott Laboratories, et al. v. Adelphia Supply USA, et al.*, U.S. District Court for the Eastern District of New York. Expert reports, November 15, 2017 and January 29, 2018; deposition, February 13, 2018.

*Before an Interest Arbitration Board between the Northeast Illinois Regional Commuter Railroad Corporation and the Brotherhood of Railroad Signalmen*, National Mediation Board. Expert report, October 20, 2017; arbitration testimony, November 8, 2017.

*American Helios Constructors, LLC v. Shoals Technology Group*, American Arbitration Association. Expert report, August 29, 2017.

*Rembrandt Enterprises, Inc. v. Eurovo S.r.l.*, U.S. District Court for the Northern District of Iowa. Expert report, July 21, 2017.

*United Energy Trading, LLC v. Pacific Gas and Electric Company, et al.*, U.S. District Court for the Northern District of California, San Francisco Division. Expert report, May 19, 2017; deposition, September 28, 2017.

*Staci Chester, et al. v. TJX Companies, Inc., et al.*, U.S. District Court for the Central District of California, Eastern Division. Declaration, April 17, 2017.

*Stanley Johnson v. Time Warner Cable, et al.*, U.S. District Court for the District of South Carolina, Columbia Division. Declaration, March 24, 2017.

*Momenta Pharmaceuticals, Inc. and Sandoz Inc. v. Amphastar Pharmaceuticals, Inc., et al.*, U.S. District Court for the District of Massachusetts. Expert report, February 16, 2017; deposition, March 28, 2017; trial testimony, July 18, 2017; declaration, March 20, 2018.

*Chad Herron, et al. v. Best Buy Stores, LP*, U.S. District Court for the Eastern District of California. Declaration, August 18, 2016; deposition, August 25, 2016.

*In Re: AZEK Decking Sales Practices Litigation*, U.S. District Court for the District of New Jersey. Declaration, July 25, 2016; deposition, August 17, 2016.

*Boston Cab Dispatch, Inc. and EJT Management, Inc. v. Uber Technologies, Inc.*, U.S. District Court for the District of Massachusetts. Expert report, May 20, 2016.

*In Re: Nest Labs Litigation*, U.S. District Court for the Northern District of California. Declaration, April 15, 2016; deposition, May 10, 2016.

*The Bakery, LLC, et al. v. Kenneth Pritt and Woodford Transportation, LLC, et al.*, Circuit Court of Greenbrier County, West Virginia. Expert reports, March 21, 2016 and May 27, 2016.

*In Re: Scotts EZ Seed Litigation*, U.S. District Court for the Southern District of New York. Expert report, March 11, 2016; deposition, April 20, 2016.

*Digital Recognition Network, Inc. v. Accurate Adjustments, Inc., et al.*, U.S. District Court for the Northern District of Texas, Fort Worth Division. Expert reports, January 22, 2016 and February 22, 2016; deposition, February 25, 2016.

*American Helios Contractors, LLC v. Bradley Kogan, Precision Renewables, LLC, and 3TAC, LLC*, District Court for Clark County Nevada. Expert report, November 13, 2015.

*Christopher Lewert v. Boiron, Inc. and Boiron USA, Inc.*, U.S. District Court for the Central District of California. Expert report, October 1, 2015; deposition, April 14, 2016.

*Wreal, LLC v. Amazon.com, Inc.*, U.S. District Court for the Southern District of Florida, Miami Division. Expert report, September 10, 2015; deposition, September 28, 2015.

*Novadaq Technologies Inc. v. Karl Storz Endoscopy-America, Inc. and Karl Storz GmbH & Co. KG*, U.S. District Court for the Northern District of California, San Jose Division. Expert report, July 28, 2015; declaration, November 10, 2015.

*Globus Medical, Inc. v. DePuy Synthes Products, LLC and DePuy Synthes Sales, Inc.*, U.S. District Court for the District of Delaware. Expert reports, July 22, 2015 and October 14, 2015; deposition, November 6, 2015.

*Broadband iTV, Inc. v. Hawaiian Telcom, Inc., et al.*, U.S. District Court for the District of Hawaii. Expert reports, June 30, 2015 and July 28, 2015; declaration, July 10, 2015; deposition, July 29, 2015.

*Greater Houston Transportation Company, et al. v. Uber Technologies, Inc. and Lyft Inc.*, U.S. District Court for the Southern District of Texas, Houston Division. Expert reports, June 29, 2015 and November 19, 2015; declaration, August 27, 2015; deposition, January 8, 2016.

*Crystal Good, et al. v. American Water Works Company, Inc., et al.*, U.S. District Court for the Southern District of West Virginia. Expert report, May 22, 2015; deposition, June 12, 2015.

*In Re: Processed Egg Products Antitrust Litigation*, U.S. District Court for the Eastern District of Pennsylvania. Expert report, March 13, 2015; deposition, May 5, 2015; affidavit, September 8, 2015; hearing testimony, December 16, 2015; trial testimony, May 29, 2018.

*Santarus, Inc. and The Curators of the University of Missouri v. Par Pharmaceutical, Inc.*, U.S. District Court for the District of Delaware. Expert report, April 21, 2014; deposition, June 12, 2014.

*Mylan Technologies, Inc. formerly known as Bertek, Inc., and Mylan, Inc. v. Zydus Noveltech, Inc., Sharad K. Govil, Cadila Healthcare Ltd., also known as Zydus Cadila, Pankaj Patel, and Sunil Roy*, Vermont Superior Court, Chittenden Civil Division. Expert report, October 2, 2013; deposition, November 19, 2013.

*Alcon Pharmaceuticals Ltd. and Alcon Research, Ltd. v. Lupin Ltd. and Lupin Pharmaceuticals, Inc.*, U.S. District Court for the District of Delaware. Expert report, June 28, 2013; deposition, July 24, 2013.

*Warner Chilcott Company, LLC v. Lupin Ltd. and Lupin Pharmaceuticals, Inc., and Warner Chilcott Company, LLC v. Watson Laboratories, Inc.*, U.S. District Court for the District of New Jersey. Expert report, June 12, 2013; deposition, July 11, 2013; trial testimony, October 8, 2013.

*In Re: Mushroom Direct Purchaser Antitrust Litigation*, U.S. District Court for the Eastern District of Pennsylvania. Expert report, May 15, 2013; deposition, October 25, 2013; hearing testimony, March 24-25, 2015.

*Lisy Corp. v. Barry A. Adams, McCormick & Company, Inc. and Mojave Foods Corporation*, Circuit Court for Howard County, Maryland. Deposition, May 23, 2012; trial testimony, April 26, 2013.

*Dey, L.P. and Dey, Inc. v. Teva Parenteral Medicines, Inc., et al.*, U.S. District Court for the Northern District of West Virginia. Expert report, January 13, 2012; deposition, February 7, 2012; trial testimony, August 2, 2013.

*Dow Corning Corporation and Hemlock Semiconductor Corporation v. Jie (George) Xiao, LXEng LLC, and LXE Solar, Inc.*, U.S. District Court for the Eastern District of Michigan, Northern Division. Declaration, January 9, 2012; expert report, March 1, 2012.

*Riverplace Development, LLC v. Charles Cranford, Esquire and Rogers Towers, P.A.*, Circuit Court, Fourth Judicial Circuit, in and for Duval County, Florida. Depositions, October 12, 2011 and December 21, 2011.

*Pfizer, Inc., et al. v. Teva Pharmaceuticals USA, Inc. and Teva Pharmaceuticals Industries, Ltd.*, U.S. District Court for the District of Delaware. Expert report, June 3, 2011; deposition, July 22, 2011.

*Ramona Trombley, et al. v. National City Bank*, U.S. District Court for the District of California. Expert report, May 27, 2011; declaration, August 29, 2011.

*Rocky Mountain Farmers Union, et al. v. James N. Goldstene*, U.S. District Court for the Eastern District of California. Declarations, October 29, 2010 and March 14, 2011.

*Investment Technology Group, Inc., et al. v. Liquidnet Holdings, Inc.*, U.S. District Court for the Southern District of New York. Expert report, April 12, 2010; deposition, June 2, 2010.

*AOB Properties, Ltd. v. Laserspine Institute, LLC, et al.*, U.S. District Court for the Middle District of Florida, Tampa Division. Expert report, December 11, 2009.

*Glaxo Group Ltd. and SmithKlineBeecham Corporation v. Teva Pharmaceuticals USA, Inc.*, U.S. District Court for the District of Delaware. Expert reports, October 15, 2009 and November 3, 2009; declaration, April 9, 2010; deposition, November 3, 2009.

*Tyco Healthcare Group LP and Mallinckrodt Inc. v. Pharmaceutical Holdings Corporation, Mutual Pharmaceutical Company, Inc. and United Research Laboratories, Inc.*, U.S. District Court for the District of New Jersey. Declaration, July 22, 2009; deposition, July 23, 2009; hearing testimony, July 29, 2009.

*ESCO Corporation v. Bradken Resources Pty Ltd*, International Chamber of Commerce, International Court of Arbitration. Expert reports, June 15, 2009 and December 21, 2009; arbitration testimony, January 29, 2010.

*Schering Corporation and MSP Singapore Company LLC v. Glenmark Pharmaceuticals Inc., USA and Glenmark Pharmaceuticals Ltd.*, U.S. District Court for the District of New Jersey. Expert report, May 8, 2009; deposition, June 18, 2009.

*Eli Lilly and Company v. Sicom Pharmaceuticals, Inc. and Teva Pharmaceuticals USA, Inc.*, U.S. District Court for the Southern District of Indiana. Expert report, February 24, 2009; deposition, March 20, 2009.

*Tobacco Technology, Inc. v. Taiga International N.V., Thomas J. Massetti, and Marie-Paul Voûte*, U.S. District Court for the District of Maryland. Expert report, August 21, 2008; deposition, November 25, 2008.

*Dow Jones & Company, Inc. v. Ablaise Ltd. and General Inventions Institute A, Inc.*, U.S. District Court for the District of Columbia. Expert report, August 20, 2008.

*Aspex Eyewear, Inc. and Contour Optik, Inc. v. Clariti Eyewear, Inc.*, U.S. District Court for the Southern District of New York. Expert report, June 20, 2008.

*Boldstar Technical, LLC and Michael S. Powell v. The Home Depot, Inc. and Industriaplex, Inc.*, U.S. District Court for the Southern District of Florida, Fort Lauderdale Division. Expert reports, April 25, 2008 and May 30, 2008; deposition, August 29, 2008; trial testimony, February 10-11, 2010.

*Novartis Pharmaceuticals Corporation, Novartis Corporation, and Novartis International AG v. Mylan Pharmaceuticals, Inc. and Mylan Laboratories, Inc.*, U.S. District Court for the District of New Jersey. Expert report, March 26, 2008; declaration, October 1, 2008; deposition, October 9, 2008.

*Gary W. Ogg and Janice Ogg v. Mediacom LLC*, Circuit Court of Clay County, Missouri in Liberty. Expert reports, March 5, 2008 and April 3, 2008; deposition, April 4, 2008; trial testimony, March 13 and 17, 2009.

*Source Search Technologies, LLC v. LendingTree, LLC, et al.*, U.S. District Court for the District of New Jersey. Expert report, May 1, 2007; deposition, June 21, 2007.

*Federal Insurance Company v. InterDigital Communications Corporation, et al.*, JAMS arbitration. Deposition, February 27, 2007; arbitration testimony, May 16, 2007.

*Student Lifeline, Inc. v. The Senate of the State of New York, et al.*, U.S. District Court for the Eastern District of New York. Expert report, January 29, 2007; deposition, July 26, 2007.

*Pediatric Screening, Inc. et al v. Telechem International, Inc.*, U.S. District Court for the Western District of Pennsylvania. Expert reports, December 15, 2006, February 16, 2007, and July 6, 2007; deposition, March 28, 2007; trial testimony, July 18-19, 2007.

*Green Mountain Chrysler-Plymouth-Dodge-Jeep, et al. v. Torti*, U.S. District Court for the District of Vermont. Expert reports, October 9, 2006 and January 17, 2007.

*The Procter & Gamble Company v. Teva Pharmaceuticals USA, Inc.*, U.S. District Court for the District of Delaware. Expert report, August 31, 2006; deposition, October 13, 2006; trial testimony, November 6, 2006.

*Central Valley Chrysler Jeep, Inc. et al. v. Witherspoon*, U.S. District Court for the Eastern District of California. Expert reports, June 12, 2006, October 9, 2006, and January 16, 2007; deposition, October 27, 2006.

*Sierra Club et al. v. Robert B. Flowers, et al.*, U.S. District Court for the Southern District of Florida, Miami Division. Depositions, June 6, 2006 and June 20, 2006; hearing testimony, October 5, 2006; declaration in support of appeal, U.S. Court of Appeals for the Eleventh Circuit, July 27, 2007.

*Merck & Co., Inc. v. Teva Pharmaceuticals USA, Inc.*, U.S. District Court for the District of Delaware. Expert report, April 6, 2006; deposition, August 8, 2006.

*Alliance Security Products, Inc. v. Fleming and Company, Pharmaceuticals*, U.S. District Court for the Southern District of New York. Expert report, March 30, 2006; deposition, May 17, 2006.

*Re Colonial Pipeline Company*, Federal Energy Regulatory Commission. Declaration, February 28, 2006.

*Tesoro Canada Supply & Distribution Ltd. in Hearing Order MH-2-2005 Regarding an Application for Priority Destination from Chevron Canada Limited, et al.*, National Energy Board of Canada. Direct testimony, January 18, 2006.

*McKesson Information Solutions, LLC v. The TriZetto Group, Inc.*, U.S. District Court for the District of Delaware. Expert report, November 17, 2005; deposition, November 30, 2005.

*Touch-n-Buy, Inc. v. Radiant Telecom, Inc., et al.*, U.S. District Court for the Southern District of Florida. Expert report, November 9, 2005; deposition, February 8, 2006.

*Jamaica Recycling Corp., et al. v. The City of New York, et al.*, Supreme Court of the State of New York, County of New York. Affidavit, August 18, 2005.

*Amerisource Corporation v. RX USA International, Inc., et al.*, U.S. District Court for the Eastern District of New York. Expert report, August 15, 2005; deposition, June 5, 2006.

*Ruth S. King v. McNeil Nutritionals LLC and McNeil PPC-Inc.*, Supreme Court of the State of New York, County of New York. Declaration, August 3, 2005; deposition, September 26, 2005; also in *Rochelle Suchoff, et al. v. McNeil Nutritionals LLC and McNeil PPC-Inc.*, Superior Court of New Jersey, Law Division, Essex County; *Jason Gregory Turner v. McNeil Nutritionals LLC and McNeil PPC-Inc.*, Superior Court of the State of California for the County of Los Angeles; *Harry Clendenan v. McNeil Nutritionals LLC and McNeil PPC-Inc.*, Circuit Court of Kanawha County, West Virginia; *Elizabeth Leser v. McNeil Nutritionals LLC and McNeil PPC-Inc.*, Court of Common Pleas, Erie County, Ohio; *Bobby Allen Green v. McNeil Nutritionals, LLC*, Judicial Court, Fourth Judicial Circuit in and for Duval County, Florida, Division CV-A; and *Jacqueline Burrows, et al. v. McNeil Nutritionals LLC and McNeil PPC-Inc.*, Superior Court of Massachusetts, Middlesex County.

*Braun GmbH v. Rayovac Corporation*, U.S. District Court for District of Massachusetts. Expert reports, May 23, 2005 and June 27, 2005; deposition, September 8, 2005.

*PediaMed Pharmaceuticals, Inc. v. Breckenridge Pharmaceutical, Inc. and Scientific Laboratories, Inc.*, U.S. District Court for the District of Maryland, Southern Division. Expert report, October 1, 2004.

*Forrest W. Garvin and E-Netec, Corp. v. McGuireWoods, LLP, et al.*, General Court of Justice, Superior Court Division for the State of North Carolina, Mecklenburg County. Deposition, July 27, 2004.

*ResQNet.com, Inc. v. LANSA, Inc.*, U.S. District Court for the Southern District of New York. Expert reports, July 14, 2004 and January 25, 2007; depositions, August 9, 2004 and May 6, 2011; trial testimony, May 21, 2007 and June 7, 2011.

*Allocco Recycling, Ltd. v. John Doherty*, U.S. District Court for the Southern District of New York. Expert report, February 4, 2004; deposition, December 9, 2004; declaration, December 2, 2005.

*Pinnacle Systems, Inc. v. XOS Technologies, Inc., et al.*, U.S. District Court for the Northern District of California. Expert report, November 7, 2003; deposition, January 15, 2004; trial testimony, February 11, 2004.

*Sinclair Oil Corporation v. BP Pipelines (North America), Inc.*, Federal Energy Regulatory Commission. Direct testimony, September 18, 2003; rebuttal testimony, March 16, 2004.

### **SELECTED CONSULTING PROJECTS AND REPORTS**

*Economic Issues Associated with a Change in the RFS Point of Obligation.* Analysis of proposals put forward by various petitioners to change the point of obligation for the RFS regulation from refiners/importers to blenders.

Calculation of potential exposure related to class action claims for false labeling of retail food product. Analysis of retail scanner data and wholesale transaction databases to determine potential price premiums associated with label claims and calculate potential damages related to allegedly false claims.

Calculation of potential exposure related class action claims for unpaid wages. Analysis of card-swipe, payroll, and scheduling data for a public utility to assess potential damages in a class action claim.

*Analysis of EPA's Proposal for a Reduction in the RFS Volume Requirements for 2014.* Analysis of EPA's proposal to adjust the volumetric requirements under the RFS.

*Economic Impacts of the RFS Program: An Analysis of the NERA Report Submitted to the EPA.* Analysis of the findings of NERA and CRA regarding economic impacts of waiving the Clean Air Act requirement for ethanol blending in gasoline.

Calculation of potential exposure related class action claims for payroll violations. Analysis of login, payroll, and expense report data for financial services firm to assess potential damages in a class action claim.

*The Impact of a Waiver of the RFS Mandate on Food/Feed Prices and the Ethanol Industry.* Analysis of the impacts of waiving the Clean Air Act requirement for ethanol blending in gasoline on animal feed prices, household expenditures on food, and the ethanol industry.

Analysis of generic pharmaceutical company's exposure for a potential at-risk launch. Financial analysis of the potential damages against a pharmaceutical company for launching a generic product before patent expiration.

Analysis of coal supply contract escalator. Report on the expected escalation in various cost indices used to determine the pricing of coal in a contract between a mining company and an electric utility.

*Review of PHMSA's Regulatory Analysis for the External Piping Requirement.* Analysis of cost-benefit for a proposed regulation on external loading pipes for hazardous materials tankers.

*The Economic Impact of a Potential NFL Lockout in 2011.* Analysis for the National Football Players Association of the impact of a loss of professional football games to the local economies of host cities.

*Review of FMCSA's Regulatory Impact Analysis for the 2010-2011 Hours of Service Rule.* Cost-benefit study for the American Trucking Associations on the proposed change in regulations of hours of service for long-haul truckers. Testified before Congressional Sub-Committee.

Consulting for an electric power cooperative on class certification in a claim for trespass damages. Analyzed factors involved in hypothetical negotiations between landowners and a transmission line operator related to value of an easement for telecommunications use.

*A Cost-Benefit Analysis of Gear Replacement for Gulf Shrimp Fishermen.* Analysis prepared for the Ocean Conservancy on the costs and benefits associated with industry-wide changes in equipment used by shrimp fisherman in the Gulf of Mexico.

Analysis of the impacts on competition of a merger in the solid-waste collection industry. Prepared databases for turnover to the U.S. Department of Justice in response to a Second Request. Prepared economic and statistical analyses of transaction data to address questions of competitive impact of consolidation.

*A Review of FMCSA's Regulatory Evaluation for the Proposed Minimum Training Requirements for Entry-Level Commercial Motor Vehicle Operators.* Analysis of the U.S. Department of Transportation's proposed regulation regarding the minimum training requirements for truck and bus drivers.

Separable Costs–Remaining Benefits calculation for a dam reconstruction project. Report on cost allocation for a municipal water district which assessed the relative benefits and costs of recreational and water-supply uses of a reservoir.

Peer review for U.S. EPA STAR Grant program. Peer review of grant applications to the EPA's National Center for Environmental Research. Provided expertise in the areas of environmental economics, statistics, and policy analysis.

Evaluation of potential Natural Resource Damage liabilities at current and former aerospace manufacturing sites. Estimated the potential costs associated with NRD liabilities at contaminated sites for an aerospace manufacturer, for use in negotiations with insurance carriers.

Non-compete valuation for real estate executives. Assessment of the value of non-compete agreements for two senior executives at a real estate management firm.

Evaluation of Natural Resource Damage liabilities at an operational mining site. Report on the potential litigation and regulatory risk associated with environmental damages at an operational mining site, including estimates of cost, probability, and timing.

Economic impact report for entertainment-related industry. Analysis of the economic impact of an entertainment-related industry on the economies of four states, including the impact of content-generation, distribution, and retail sales on employment, output, and tax revenue.

*The Past, Present, and Future Socioeconomic Effects of the Niagara Power Project.* Analysis of the economic impact of a hydro-electric facility on the local and regional economies, demographics, industry, and real estate as part of a supplemental environmental impact statement for re-licensing.

## PUBLICATIONS

"EPA Enforcement of the Renewable Fuel Standard Program," *Agriculture and Food Committee Newsletter*, American Bar Association, Section of Antitrust Law, v. 4, n. 1, Fall 2013.

"An Economic Perspective on Food Labeling Cases," in *Intellectual Property Law* 360, May 30, 2013.

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## **EXHIBIT 7**

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**IN THE UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
OAKLAND DIVISION**

JEFF YOUNG, individually and on behalf of all  
others similarly situated,

Plaintiff,

v.

CREE Inc.,

Defendant.

Civil Action No. 4:17-cv-06252-YGR

**EXPERT REBUTTAL REPORT OF JOEL H. STECKEL, PH.D.**

**March 22, 2019**

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## **I. INTRODUCTION**

### **A. Qualifications**

1. I am a Professor of Marketing and the Vice Dean for Doctoral Education at the Leonard N. Stern School of Business, New York University, where I have taught since January 1989. I was the Chairperson of the Marketing Department for six years, from July 1998 to June 2004. Since August 2016 I have been serving as the Acting Chairperson of the school's Accounting Department. Prior to my promotion to Vice Dean, I was the faculty director of the Stern School Doctoral Program for five years, from May 2007 to July 2012. I have also held either permanent or visiting faculty appointments at the Graduate School of Business, Columbia University; the Anderson Graduate School of Management, U.C.L.A.; the School of Management, Yale University; and the Wharton School, University of Pennsylvania. I received my B.A. *summa cum laude* from Columbia University in 1977, and M.B.A., M.A., and Ph.D. degrees from the Wharton School, University of Pennsylvania in 1979, 1980, and 1982, respectively. I was elected to Phi Beta Kappa at Columbia University and Beta Gamma Sigma at the Wharton School. These are the national honor societies for the respective disciplines I studied at these institutions.
2. I was the Founding President of the INFORMS (Institute for Operations Research and Management Science) Society on Marketing Science, the foremost professional group for the development and application of management science theory and tools in marketing. In addition, I am a member of the American Marketing Association, the American Statistical Association, the Association for Consumer Research, the American Psychological Association, the American Association for Public Opinion Research, and the Society for Consumer Psychology.

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3. My fields of specialization within marketing include marketing research methodology such as conjoint survey design and analysis, marketing and branding strategies, electronic commerce, managerial decision-making, and consumer decision-making. I am an author of four books and over 50 articles. In the course of my scholarly research, teaching, and consulting work, I have studied issues of marketing research, branding, and their roles in consumer choice and marketing strategy.
4. One of the books I co-authored is a textbook entitled *Marketing Research*. This book has been adopted at several of the country's major business schools. During one of my sabbaticals I served as an in-house consultant at the market research firm, Directions for Decisions (DFD), headquartered in Jersey City, New Jersey. DFD's growth allowed it to be acquired by RTi Research, another research firm, headquartered in Norwalk, Connecticut.
5. I have sat on the editorial boards of many of our major journals over the years. Until last year, I served as a co-Editor-in-Chief of the journal *Marketing Letters*. In that capacity I evaluated over 200 research studies each year for six and a half years. I served as a gatekeeper, deciding what got published in the journal, and what did not. As such, my evaluations of the scientific reliability and validity of each study were subject to the scrutiny of the academic community. The community considers any study that does not conform to the scientific standards of my profession that appears in the journal as a black mark on my record. I consider the fact that the journal's publisher, the international firm, Springer-Verlag, kept me on long past the expiration of my term (July 2014) as validation of my performance in evaluating research. My professional qualifications are described further in my curriculum vitae, which is attached as **Appendix A**.

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6. During the course of my professional career, I have designed, conducted, supervised, and/or evaluated hundreds of consumer surveys including conjoint surveys. In that work I have formulated sampling strategies, designed questionnaires, analyzed data, and interpreted results. I have also evaluated similarly purposed survey work performed by others. During my career, I have taught M.B.A students about, written textbook chapters and research papers on, and lectured executives on conjoint surveys and analysis. I have also published research using and advancing the state of the art of conjoint surveys and analysis.
7. I have served as an expert witness on marketing research, marketing strategy, branding, trademark, and issues related to consumer decision-making in a variety of litigation matters. In the past four years, I testified as an expert witness in the matters listed in **Appendix B**.
8. My rate of compensation for this assignment is \$1,000 per hour. Others at Analysis Group, Inc. (“AG”), an economic and litigation consulting firm headquartered in Boston, Massachusetts, performed part of the work for this assignment under my direction. I receive additional compensation from AG related to the work of others under my supervision. No compensation is contingent upon the outcome of this research or of the case.

## **B. Background**

9. According to the Complaint in this matter, Jeff Young (“Plaintiff”) “purchased three 100 Watt Standard A-Type bulbs on or around April of 2015 from WalMart” and paid between \$15 and \$20 for each bulb.<sup>1</sup> Prior to purchasing the bulbs, Plaintiff “viewed some internet and television advertisements by Cree” and “reviewed the representations on the label which

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<sup>1</sup> Amended Class Action Complaint, *Jeff Young, individually and behalf of all others similarly situated, v. Cree Inc.*, Civil Action No. 4:17-cv-06252-YGR, United States District of California, San Francisco Division, April 30, 2018 (“Complaint”), ¶ 36.

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compared the Cree bulbs to other LED and non-LED light bulbs.”<sup>2</sup> Plaintiff seeks to represent a class defined as: “All persons in California who purchased the LED Lightbulbs during the applicable limitations period.”<sup>3</sup>

10. The Defendant, Cree, Inc. (“Cree”), is headquartered in Durham, North Carolina<sup>4</sup> and manufactures, markets, and sells various LED light bulbs, including “Standard A-Type, Reflector (Flood/Spot), and Specialty.”<sup>5</sup> According to the Complaint, Cree markets its light bulbs with packaging containing “an estimated lifetime use and energy saving” as well as “an ‘estimated’ cost savings for the purchaser buying the product, which range based on the cost of the product and the advertised lifespan for the LED lights.”<sup>6</sup> Cree also allegedly includes such marketing statements on their website as well as in several online and TV advertisements.<sup>7</sup>

11. In the Complaint, Plaintiff alleges that “[m]any of Cree’s LED bulbs are sold with packaging which indicates that the product comes with a 10 Year Warranty or ‘100% Satisfaction Guaranteed’” as well as “an estimated lifetime use and energy saving, indicating that the products will save consumers money in the long term despite their high purchase price point” and that “the useful life of the product will be at least 10 years or more.”<sup>8</sup> Plaintiff claims that Cree “created an overall marketing scheme that overpromises the longevity of the

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<sup>2</sup> Complaint, ¶ 36.

<sup>3</sup> Complaint, ¶ 38.

<sup>4</sup> Complaint, ¶ 14.

<sup>5</sup> Complaint, ¶ 20.

<sup>6</sup> Complaint, ¶¶ 17, 28.

<sup>7</sup> Complaint, ¶¶ 22, 32.

<sup>8</sup> Complaint, ¶ 17. Plaintiff also notes that “Cree packaging boasts that their products have life of ‘27+ years’ or more depending on the bulb.” Complaint, ¶ 18.

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Lightbulbs”<sup>9</sup> and that the “longevity representations (i.e. 27+ years), taken in conjunction with the marketing and advertising of the Lightbulbs detailed herein, signals to the consumer that the bulbs will significantly outlast traditional incandescent bulbs, when it is, in fact, not true.”<sup>10</sup> Plaintiff alleges that “LED Lightbulbs do not last nearly as long as advertised” and that “Plaintiff and members of the class paid a price premium for the Cree LED bulbs that they would not have paid absent the false marketing representations of Defendant.”<sup>11</sup> Mr. Boedeker refers to the representations of lifetime as the “Longevity Claims.”

12. Plaintiff retained Mr. Stefan Boedeker to “provide a framework for the computation of class-wide damage.” In particular, Mr. Boedeker was asked to “[e]xplain and outline an empirical study to assess consumers’ changes in choices and preferences to quantify the economic loss to consumers if they were given the information at the point of purchase that Defendant’s Longevity Claims were false and misleading” and “[e]xplain and outline a statistical methodology to calculate class-wide damages.”<sup>12</sup>

### **C. Assignment**

13. I was asked by Katten Muchin Rosenman LLP, counsel for Cree, to assess whether or not Mr. Boedeker’s survey designs, data analyses, and conclusions were conducted in a scientifically appropriate and valid manner. I was asked to consider the extent to which Mr. Boedeker’s surveys and data analyses support his conclusions that “each consumer who

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<sup>9</sup> Complaint, ¶ 19.

<sup>10</sup> Complaint, ¶ 19.

<sup>11</sup> Complaint, ¶¶ 7, 9.

<sup>12</sup> Expert Report of Stefan Boedeker In Support of Plaintiff’s Motion for Class Certification, *Jeff Young, individually and on behalf of all others similarly suited, v. Cree Inc.*, Civil Action No. 4:17-cv-06252-YGR, United States District Court, Northern District of California, San Francisco Division, January 18, 2019 (“Boedeker Report”), ¶ 14.

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bought Defendants' light bulbs with the false Longevity Claims overpaid"; that "consumers also overpaid because of the warranty claim"; and that "the method proposed and described in [his] report can be used to expand the results of the conjoint study to a complete model to calculate class-wide damages."<sup>13</sup> In addition, I was asked to determine whether his surveys provide a reliable measure of "economic loss."<sup>14</sup>

14. In formulating my opinions, I relied upon the items cited in the footnotes to this report and in **Appendix C**.

#### **D. Summary of Conclusions**

15. Based on my review of the Boedeker Report, I conclude that Mr. Boedeker's "Pre-Test" survey, conjoint survey, and data analyses suffer from severe mistakes and cannot support the measurement of "economic loss." Mr. Boedeker's methods and results cannot support the conclusion that consumers overpaid due to the longevity and warranty claims, nor can they be used to calculate class-wide damages. Specifically, I find that:

- a. Mr. Boedeker's exploratory "Pre-Test" survey is fraught with fundamental problems that yield invalid, irrelevant, and biased data. Many attributes in Mr. Boedeker's "Pre-Test" are confusing and overlapping in meaning. His "Pre-Test" questions are leading and likely encouraged respondents to guess in a manner that biases results. Further, since he conducted statistical tests that do not have adequate statistical power, Mr. Boedeker cannot conclude from his "Pre-Test" that there is no difference in preferences between Cree purchasers and purchasers of all other brands.

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<sup>13</sup> Boedeker Report, ¶¶ 172, 174.

<sup>14</sup> Boedeker Report, ¶ 171.

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- b. Mr. Boedeker's flawed and biased conjoint survey design cannot yield valid results. His conjoint choice tasks reflect an unrealistic marketplace scenario and ignore the results of his exploratory "Pre-Test." Each choice screen inflates his willingness-to-pay measurement by biasing respondents towards noting that a low light bulb lifetime can be equated with a "cheap" product. Mr. Boedeker also does not sufficiently define the comparative lifetime claim attribute and therefore has no way of knowing how respondents interpreted the attribute and its levels, particularly the level "No claim." Further, by providing respondents with the lifetime concept as two separate attributes in the choice task, Mr. Boedeker creates choice options that amplify respondents' value of lifetime in the choice tasks and allow for the choice tasks to present inconsistent attribute information. On top of these confusing factors, Mr. Boedeker presents excessively complex choice tasks that likely resulted in respondents not paying sufficient attention to each choice screen. These errors cannot be retroactively accounted for in Mr. Boedeker's data analysis.
- c. Beyond the severe design errors in his conjoint survey, Mr. Boedeker's analyses of his conjoint data are conceptually and technically flawed. His method of calculating willingness-to-pay is not an accepted practice in conjoint analysis, and he constructs what he calls "demand" curves with no consideration of actual products that exist in the marketplace. Despite discussing the concepts of both supply and demand in his theoretical framework, Mr. Boedeker does not account for supply-side dynamics in his conjoint analysis. Further, Mr. Boedeker's results

are illogical. In particular, they suggest some respondents preferred shorter lifetimes to longer ones.

- d. In designing both of his surveys, Mr. Boedeker failed to follow basic best practices for surveys for litigation, which could have allowed him to identify major design flaws.

## II. OVERVIEW OF MR. BOEDEKER'S TWO STUDIES

16. Mr. Boedeker seeks to “assess consumers’ changes in choices and preferences to quantify the economic loss to consumers.”<sup>15</sup> He presents two surveys: an exploratory study, which he refers to as a “Pre-Test” survey, and a choice-based conjoint survey.

### i. *Overview of Mr. Boedeker’s Exploratory “Pre-Test” Survey*

17. Mr. Boedeker’s first survey, which he confusingly refers to as his “Pre-Test” survey,<sup>16</sup> seeks “to understand the consumer preferences for light bulbs and the importance of certain attributes of light bulbs to consumers.”<sup>17</sup>

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<sup>15</sup> Boedeker Report, ¶ 14.

<sup>16</sup> As I will discuss in Section VI.A, Mr. Boedeker does not conduct a pretest as defined and required by survey guidelines for litigation. In her *Reference Guide on Survey Research*, Dr. Shari Diamond describes a pretest as the administration of the survey to a small sample of the target population in which “interviewers observe the respondents for any difficulties they may have with the questions and probe for the source of any such difficulties so that the questions can be rephrased if confusion or other difficulties arise.” Diamond, S.S., “Reference Guide on Survey Research,” *Reference Manual on Scientific Evidence*, 3<sup>rd</sup> Edition, National Academies Press, 2011, pp. 359-423, (“Diamond”), at p. 389. Properly conducted pretests can inform the design of the ultimate survey instrument and help identify potential flaws in the survey design. What Mr. Boedeker refers to as a “Pre-Test” is not a pretest but an exploratory study; however, for clarity and consistency with Mr. Boedeker’s terminology, I will use the term “Pre-Test” in quotation marks when referring to his exploratory study.

<sup>17</sup> Boedeker Report, ¶ 94.

18. This exploratory “Pre-Test” survey applied the following qualification criteria for respondents to participate in the study:

- “a. Respondent is 18 years or older;
- b. Respondent resides in the United States
- c. Respondent has purchased LED light bulbs or Wi-Fi enabled LED light bulbs in the past 2 years;
- d. Respondent is familiar with at least one of the LED light bulb brands listed in the survey;
- e. Respondent took the purchasing decision or was involved in the purchasing decision in at least one LED light bulb purchase in the past two years;
- f. Respondent is not working in market research.”<sup>18</sup>

In total, 500 respondents qualified for and completed the “Pre-Test” survey.<sup>19</sup>

19. After qualifying for the “Pre-Test” survey, respondents were first asked, “Which of the following attributes are important to you in your purchasing decision when shopping for an LED light bulb?” and provided a list of 25 attributes, including “Other.”<sup>20</sup> Next, for the attributes each respondent selected, Mr. Boedeker provided respondents with a constant-sum point allocation task. Specifically, he asked respondents to “allocate 100 points across the features by putting a number between 0 and 100 for each feature” (emphasis in original), with “the most points for the features [they] care about the most and the fewest points for

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<sup>18</sup> Boedeker Report, ¶ 96, footnote 41. “The listed brands are 3M, Cree, EarthLED, EcoSmart, FEIT, GE, Geobulb, Halco, IKEA, Insignia, OSRAM, Phillips, SunSun, Switch, Sylvania, TCP/TruDim, Utilitech.”

<sup>19</sup> Boedeker Report, ¶ 98.

<sup>20</sup> “LED Pre-Survey.docx.” The full list of attributes included: “Brand, Potential cost savings, Wattage, Warmth of light, Color / Light Quality, Energy Efficient & Payback, Dimming / Dimming Range / Flicker, Price / Value, Appearance, Brightness / Light Output, Heat Production, Cold Temperature / Outdoors, Dispersion / Omni, Mercury / Toxic / Disposal, Lifetime / no Maintenance, Warm-up / On Time, Buzz / Sound / Radio Frequency Interference (RFI), Warranty, Packaging, Eco / Green / Environment, Bulb coating / glass, Made / Assembled in USA, Bulb design / size / build / weight / quality, As Advertised / Meet performance expectations, Other.”

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features [they] care about the least.”<sup>21</sup> Mr. Boedeker calculated the mean point allocation for each of the provided light bulb attributes to determine the “importance scores” of each attribute.<sup>22</sup> He then compared the attribute importance scores for Cree purchasers and non-Cree purchasers, concluding that “because preferences between LED light bulb purchasers differ little by brand, I can include purchasers of all brands in a conjoint analysis.”<sup>23</sup>

ii. *Overview of Mr. Boedeker’s Choice-Based Conjoint Survey*

20. Mr. Boedeker’s second survey, a choice-based conjoint survey, was designed to “assess consumers’ changes in choices and preferences to quantify the economic loss to consumers if they were given the information at the point of purchase that Defendant’s Longevity Claims were false and misleading”<sup>24</sup> and “to calculate class-wide damages if the disclosure that Defendant’s products are not as represented at the point of purchase with regard to the Longevity Claims, which leads consumers to no longer purchase the product or to purchase the product at a reduced price.”<sup>25</sup> In other words, Mr. Boedeker used his conjoint data to calculate consumers’ “willingness-to-pay” for particular attribute levels (see Mr. Boedeker’s Section 2 of his report, “Theoretical Framework of Economic Loss”).

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<sup>21</sup> “LED Pre-Survey.docx.”

<sup>22</sup> See, for example, Boedeker Report, Table 2.

<sup>23</sup> Boedeker Report, Table 2 and ¶ 115.

<sup>24</sup> Boedeker Report, ¶ 14. The Boedeker Report characterizes Cree’s claims as *false*. However, his task did not need to make this characterization. All he needed to do was quantify the economic value of a product with the claims as stated relative to another “but-for” product. This task is independent of whether the claims are true or false. The Boedeker Report’s characterization of false messages is unnecessary, gratuitous, and revealing of potential bias.

<sup>25</sup> Boedeker Report, ¶ 14.

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21. The choice-based conjoint survey applied the following qualification criteria for respondents:

- “a. Respondents are 18 years or older;
- b. Respondents are not working in market research;
- c. Respondents have to reside within the US;
- d. Respondents have purchased LED light bulbs within the past four years (2015-2018);
- e. Respondents are familiar with at least one of the LED light bulb brands listed in the survey;
- f. Respondents took the purchasing decision or was involved in the purchasing decision in at least one LED light bulb purchase in the past four years;”<sup>26</sup>

In total, 1,000 respondents qualified for and completed the conjoint survey.<sup>27</sup>

22. Mr. Boedeker randomly assigned respondents into two groups: 500 respondents were assigned conjoint choice tasks involving 60W-equivalent LED bulbs, and 500 respondents were assigned conjoint choice tasks involving 100W-equivalent LED bulbs.<sup>28</sup> Qualified respondents were presented a hypothetical purchase scenario asking them to “Assume that you are purchasing [a 60W- or 100W-equivalent LED bulb from] your favorite brand. Please indicate which of the given options you would prefer.”<sup>29</sup> Immediately after respondents selected their preferred option in each choice task, they were asked: “Would you purchase the option you selected above?”<sup>30</sup> Each respondent then completed twelve choice tasks

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<sup>26</sup> Boedeker Report, ¶ 122, footnote 48. “The listed brands are 3M, Cree, EarthLED, EcoSmart, FEIT, GE, Geobulb, Halco, IKEA, Insignia, OSRAM, Phillips, SunSun, Switch, Sylvania, TCP/TruDim, Utilitech.”

<sup>27</sup> Boedeker Report, ¶ 119.

<sup>28</sup> Boedeker Report, ¶ 123.

<sup>29</sup> “LED Conjoint Survey.docx.”













<sup>30</sup> “LED Conjoint Survey.docx.”

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consisting of five different LED light bulbs with seven varying attributes.<sup>31</sup> An example of a choice task presented to respondents is included in Figure 1 below.

**Figure 1. Example of a Choice Task in Mr. Boedeker's Conjoint Survey<sup>32</sup>**

For a **10 Watt LED light bulb of size A19 to replace a 60 Watt incandescent bulb**, please indicate which of the given options you would select. 

	Option 1	Option 2	Option 3	Option 4	Option 5
 Indoor / Outdoor	Yes	Yes	Yes	Yes	Yes
 Dimmable	Yes	Yes	No	No	Yes
 Comparison to cheap LED light bulbs	No claim	The LED light bulb will last six times longer than cheap LED light bulbs.	The LED light bulb will last six times longer than cheap LED light bulbs.	No claim	No claim
 Lifetime	Lasts 31+ years (35,000 hours) with estimated lifetime savings of \$192.50 over incandescent bulbs.	Lasts 31+ years (35,000 hours) with estimated lifetime savings of \$192.50 over incandescent bulbs.	Lasts 22+ years (25,000 hours) with estimated lifetime savings of \$137.50 over incandescent bulbs.	Lasts 13+ years (15,000 hours) with estimated lifetime savings of \$82.50 over incandescent bulbs.	Lasts 22+ years (25,000 hours) with estimated lifetime savings of \$137.50 over incandescent bulbs.
 Color	Daylight (5000K)	Soft white (2700K)	Daylight (5000K)	Daylight (5000K)	Soft white (2700K)
 Warranty	10-year 100% satisfaction guarantee, redeemable at retailer	10-year 100% satisfaction guarantee, redeemable at retailer	10 years with original receipt and packaging, have to pay for shipment	10 years with original receipt and packaging, have to pay for shipment	Standard 90-day warranty, redeemable at retailer
 Price	\$6.99	\$5.49	\$2.49	\$2.49	\$6.99
Which option would you prefer?					

23. Based on these choice data from 1,000 respondents who each completed twelve choice tasks, Mr. Boedeker conducted the analyses that ultimately led him to conclude that “each consumer who bought Defendants’ light bulbs with the false Longevity Claims overpaid”; that “consumers also overpaid because of the warranty claim”; and that “the method proposed and described in [his] report can be used to expand the results of the conjoint study to a complete model to calculate class-wide damages.”<sup>33</sup> Mr. Boedeker’s report provides little

<sup>31</sup> “LED Conjoint Survey.docx.” Attributes included “Color, Dimmable, Indoor / Outdoor, Warranty, Lifetime, Comparison to cheap LED light bulbs, Price per bulb.”

<sup>32</sup> Excerpt of “LEDSURVEYCONJOINTSCREENSHOTS (1.14.19).pdf,” p. 20.

<sup>33</sup> Boedeker Report, ¶¶ 170, 172, 174.

detail regarding the mathematical operations involved in the complex output of the Hierarchical Bayesian model underlying his analyses. Instead, Mr. Boedeker superficially sketches out a four-step process to analyze the data of his choice-based conjoint survey:

“a. Step 1: Based on the results from the CBC analysis, compute individual part-worths for each respondent for each attribute and each level in the study.”

b. Step 2: Construct the demand curves for the product in the actual world and the but-for world.

c. Step 3: Quantify the drop in consumer demand, if any, and the corresponding economic loss that the purchasers experienced because they were unaware at the point of purchase in the actual world that the Longevity Claims are false.

d. Step 4: Conduct market simulations to assess the drop in demand for a large variety of product combinations.”<sup>34</sup>

24. As Mr. Boedeker’s descriptions of his individual analyses are sparse and vague, in Section V.A, I describe my understanding of his analyses based on my review of his statistical programs and report.

### **III. MR. BOEDEKER’S EXPLORATORY “PRE-TEST” GENERATES BIASED INFORMATION ABOUT CONSUMER PREFERENCES DUE TO NUMEROUS FLAWS**

25. Mr. Boedeker’s exploratory “Pre-Test” survey is fraught with fundamental problems that yield invalid, irrelevant, and biased data. His questions are phrased in a leading manner and his answer options are lengthy, overlapping in their meaning, and likely confusing to respondents. As I discuss further in Section VI.A, even though Mr. Boedeker refers to his

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<sup>34</sup> Boedeker Report, ¶ 139.

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exploratory survey on consumer preferences as a “Pre-Test,” it is by no means a pretest, as defined by academic literature.<sup>35</sup> In fact, Mr. Boedeker did not appropriately pretest his exploratory “Pre-Test” study. As result, Mr. Boedeker has no way of knowing how respondents interpreted his questions and answer options, whether they could disentangle seemingly similar answer options, or whether they understood the questions and answer options at all.

26. Putting aside the fundamental design flaws in his “Pre-Test” survey, Mr. Boedeker’s analyses of the “Pre-Test” survey results are insufficient to support his ultimate conclusion that “preferences between LED light bulb purchasers differ little by brand.”<sup>36</sup> Specifically, Mr. Boedeker does not compare his calculated mean attribute importance values using samples of sufficient size for drawing valid statistical conclusions. His reliance on an insufficient sample size renders his claim that Cree light bulb purchasers have the same preferences as purchasers of other brands of LED light bulbs scientifically unsupported. In other words, Mr. Boedeker has no proof that the minute number of Cree purchasers in his sample are similar to purchasers of other LED light bulb brands.

27. Further, while Mr. Boedeker claims that his “Pre-Test” provided an understanding of the “importance of certain attributes of light bulbs to consumers,”<sup>37</sup> he does not describe how the results of his “Pre-Test” informed his selection of attributes in his conjoint survey. For

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<sup>35</sup> As I mentioned in my footnote 16, Mr. Boedeker does not by any means conduct a pretest as defined and required by survey guidelines for litigation. In her *Reference Guide on Survey Research*, Dr. Shari Diamond describes a pretest as the administration of the survey to a small sample of the target population in which “interviewers observe the respondents for any difficulties they may have with the questions and probe for the source of any such difficulties so that the questions can be rephrased if confusion or other difficulties arise.” Diamond, p. 389.

<sup>36</sup> Boedeker Report, ¶ 115 and Table 2.

<sup>37</sup> Boedeker Report, ¶ 94.

example, “Brightness / light output” was the second most important attribute in Mr.

Boedeker’s “Pre-Test” survey, but this attribute was not included in his conjoint survey.<sup>38</sup>

**A. Mr. Boedeker’s “Pre-Test” provides confusing attributes that are overlapping in meaning**

28. Many attributes in Mr. Boedeker’s “Pre-Test” are overlapping in meaning and therefore likely to confuse respondents. After qualifying for Mr. Boedeker’s “Pre-Test” survey, respondents are first asked, “Which of the following attributes are important to you in your purchasing decision when shopping for an LED light bulb?”<sup>39</sup> Respondents are presented with a list of 24 attributes to evaluate for importance. There are several flaws with this set of answer options. First, having to consider 24 attributes at once is likely to fatigue respondents and lead to guessing,<sup>40</sup> resulting in invalid responses.
29. Second, the attributes provided are not “well identified,” as answer options should be in proper survey design.<sup>41</sup> That is, certain attributes appear to have overlapping characteristics and multiple possible meanings. Contrary to Mr. Boedeker’s incorrect assertion that such overlapping meanings do not matter in conjoint survey design,<sup>42</sup> overlapping meanings likely confused respondents as to which answer option best reflected their preferences. For

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<sup>38</sup> Boedeker Report, Table 2; “LED Conjoint Survey.docx.”

<sup>39</sup> “LED Pre-Survey.docx.”

<sup>40</sup> See, for example, Holbrook, A.L., M.C. Green, and J.A. Krosnick, “Telephone Versus Face-to-Face Interviewing of National Probability Samples with Long Questionnaires: Comparisons of Respondent Satisficing and Social Desirability Response Bias,” *Public Opinion Quarterly*, Vol. 67, 2003, pp. 79-125, at p. 82. “[M]any other respondents who agree to be interviewed may become fatigued and may lose their motivation to carry out the required cognitive steps as they progress through a questionnaire.”

<sup>41</sup> Diamond, p. 394. In conjoint surveys specifically, attributes with overlapping meanings can be particularly problematic. Orme, B.K., *Getting Started with Conjoint Analysis: Strategies for Product Design and Pricing Research*, Research Publishers: Madison, 2006, (“Orme (2006)”), at p. 45.

<sup>42</sup> Deposition of Stefan Boedeker, *Jeff Young, individually and behalf of all others similarly situated, v. Cree Inc.*, Civil Action No. 4:17-cv-06252-YGR, United States District of California, Oakland Division, March 12, 2019 (“Boedeker Deposition”), pp. 112-113.

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example, three discrete attributes, “Color / Light Quality,” “Brightness / Light Output,” and “Warmth of light,” appear to be intertwined and overlapping in meaning. It is unclear how respondents interpreted each of these individual attributes and whether, when asked to select important attributes, they allocated points similarly to all three attributes, or tried to account in their allocations for this overlap in attributes.

30. For instance, “warmth of light,” in the context of “soft white” versus “daylight,” is often described in the light bulb market as a bulb’s “color.”<sup>43</sup> Mr. Boedeker’s conjoint survey definition for the attribute “Color” implicitly acknowledges this overlap in meaning.<sup>44</sup> In the likely event that respondents interpreted “color” and “warmth of light” to be overlapping and selected both as being important, it is unclear how respondents would allocate points between the attributes given their overlapping meaning. In fact, Mr. Boedeker himself acknowledges in his deposition that it would not be possible to disentangle such overlaps in respondent understanding.<sup>45</sup> If, instead, respondents understood “color” and “warmth of light” to be overlapping and did not choose both attributes as important, they would have provided inconsistent responses, calling the validity of their responses to the question.

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<sup>43</sup> For example, ENERGY STAR describes light bulbs as “‘warm’ colors” if they are “yellowish” and “‘cooler’ colors” if they are “whiter or bluer.” “Color and Mood,” *ENERGY STAR*, available at [https://www.energystar.gov/products/lighting\\_fans/light\\_bulbs/color\\_mood](https://www.energystar.gov/products/lighting_fans/light_bulbs/color_mood), accessed on March 4, 2019. Alternatively, it is possible that while some respondents understood “warmth of light” to relate to color, others may have understood it to mean the actual temperature of the light bulb. Mr. Boedeker acknowledges this possibility. *See* Boedeker Deposition, p. 113 (“Q. What does warmth of light mean to you? A. To me, right now, meaning that it refers to -- to the -- either like a more yellow light can give you a feeling of warmth, but it could also mean that the actual temperature, right? This is just like a word, an expression that is used...”).

<sup>44</sup> Mr. Boedeker’s conjoint defines “Color” as “The color temperature is measured in Kelvin. Lower values like the standard incandescent 2700K produce a more yellow light, higher values like 5000K create a bluer light.” “LEDSURVEYCONJOINTSCREENSHOTS (1.14.19).pdf,” p. 13.

<sup>45</sup> “A. I said there is probably overlap, probably nonquantifiable overlap because it depends on who reads this, right? So any consumer may have a slightly different interpretation, and then to them, the overlap is -- is there or not there.” Boedeker Deposition, p. 116.

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31. As another example, the “Potential cost savings” of a bulb is directly related to the “Energy Efficient & Payback” attribute as well as the “Lifetime / no maintenance” attribute.<sup>46</sup> That is, a more energy-efficient light bulb will likely also have high cost savings. Additionally, a light bulb with an “Eco / Green / Environment” attribute is likely energy-efficient and therefore also has higher potential cost savings. Without a proper pretest, Mr. Boedeker is unable to determine how respondents understood these attributes.
32. Figure 2 below highlights examples of such overlapping attributes in Mr. Boedeker’s “Pre-Test” survey.

**Figure 2. Examples of Attributes in Mr. Boedeker’s “Pre-Test” Survey with Overlapping Meaning<sup>47</sup>**

<u>Mr. Boedeker’s Attributes</u>	<u>Themes</u>
Energy efficient & payback	Lifetime
Potential cost savings	
Eco / green / environment	
Lifetime / no maintenance	
Brightness / light output	Color
Color / light quality	
Warmth of light	
Bulb design / size / build / weight / quality	Shape / Appearance
Appearance	
Bulb coating / glass	
Packaging	

<sup>46</sup> In fact, Mr. Boedeker acknowledges this overlap himself in his conjoint survey design, where his “lifetime” attribute definition includes the number of years and hours a bulb will last, as well as energy costs and lifetime savings. In his deposition he also stated, “Cost savings is a comparison to something else, which is implied longevity.” Boedeker Deposition, p. 82.

<sup>47</sup> Boedeker Report, Table 2.

33. Mr. Boedeker makes no attempt to resolve this complexity for respondents. He provides no description to respondents to explain any of the listed attributes, and, as a result, it is unclear how respondents interpreted any of the 24 attributes. For example, Mr. Boedeker provides the attribute “Appearance,” but it is unclear to what exactly the attribute is referring. Respondents who selected “Appearance” may have thought about the warmth and/or color a light bulb emits, while other respondents may have thought about the size, shape, and bulb coating of the light bulb itself (all of these are also attributes offered in Mr. Boedeker’s “Pre-Test” survey).<sup>48</sup> Mr. Boedeker cannot know how his respondents interpreted the unclear attributes with overlapping meanings, and his data from the point-allocation exercise are muddled by this complexity.
34. Mr. Boedeker presents no support that his attributes are clearly understood by respondents, that they have a singular meaning to respondents, or that respondents did not struggle with the task overall. Because Mr. Boedeker did not conduct a proper pretest of his “Pre-Test” survey, it is impossible to know how respondents interpreted the provided attributes. Therefore, the results of his “Pre-Test” survey are entirely invalid.
35. Apart from the complex nature of overlapping attributes, the constant-sum allocation instruction in Mr. Boedeker’s “Pre-Test” survey is incomplete. Constant-sum scales typically ask respondents to allocate a number of points, in this case 100, *in proportion to* the relative importance of the attributes. Mr. Boedeker’s “Pre-Test” instructions did not include the “in proportion to” language. As such, it is impossible to be sure what respondents intended the

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<sup>48</sup> Mr. Boedeker himself acknowledges such overlap. “Q. The attribute that -- that you included in the -- in the survey called “Appearance,” what does that mean? A. I mean, again, I mean, it means whoever takes the survey, what it means to them, right? Appearance could be design. It could be how it looks when it’s in the light fixture, in their house, right, in there [sic] apartment. Appearance is just something that is a more abstract design look kind of, like, attribute, which is maybe a category that may be of relevance to -- to some consumers.” Boedeker Deposition, p. 115.

precise allocations to be. Without an understanding of what respondents' intended their allocations to signify, taking arithmetic means across individual respondents is meaningless and does not allow Mr. Boedeker to draw valid conclusions about respondents' preferences for LED light bulbs.

**B. Mr. Boedeker's exploratory "Pre-Test" questions are leading and likely encouraged respondents to guess in a manner that biases results**

36. Mr. Boedeker's failure to ask questions in a balanced, non-leading manner pushes respondents to consider the attributes presented by Mr. Boedeker to be "important" to them. After qualifying for Mr. Boedeker's "Pre-Test" survey, respondents are first asked the unbalanced and potentially leading question, "Which of the following attributes are important to you in your purchasing decision when shopping for an LED light bulb?"<sup>49</sup> This question assumes that there is at least one provided attribute that is important to consumers in their LED light bulb purchase decisions. Best practices in survey design suggest that such unbalanced formulations of questions be avoided.<sup>50</sup> The leading nature of this question likely inflated the reported and computed "importance scores" of the attributes queried in Mr. Boedeker's "Pre-Test" survey.

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<sup>49</sup> "LED Pre-Survey.docx."

<sup>50</sup> For a discussion regarding balanced question design, see Jacoby, J., "Are Closed-Ended Questions Leading Questions?" in *Trademark and Deceptive Advertising Surveys: Law, Science and Design*, eds. S.S. Diamond and J.B. Swann, American Bar Association, Section of Intellectual Property Law, 2012, pp. 261-284, ("Jacoby"), at pp. 274-275. "When the question itself or the response options provided with the question are weighted more in one direction rather than another, the question is a leading question. Failure to be balanced assumes many different forms," Jacoby, at p. 274. Examples of a failure to be balanced include "failure to provide options representing opponent's argument(s) or position(s)" and "failure to give comparable explicit emphasis to the affirmative, negative, and neutral positions," Jacoby, at pp. 274-275.

**C. Mr. Boedeker cannot conclude from his “Pre-Test” that there is no difference in preferences between Cree purchasers and purchasers of all other brands**

37. Mr. Boedeker’s conclusion that Cree purchasers in his sample have the same preferences as purchasers of other brands cannot be supported. He relies on statistical tests that do not have adequate statistical power to allow him to arrive at his conclusion. Mr. Boedeker seems to ignore that only 43 (out of 500) respondents in his “Pre-Test” survey were Cree light bulb purchasers. This sample size is insufficient to conduct meaningful statistical significance tests, as the statistical power of a two-sample t-test with sample sizes of 43 (Cree purchasers) and 457 (non-Cree purchasers) is only 0.25,<sup>51</sup> far less than the commonly recommended statistical power of 0.8.<sup>52</sup> Therefore, Mr. Boedeker’s finding that there is “no statistically measurable difference in the preferences of respondents who had purchased Cree branded LED light bulbs and all other respondents”<sup>53</sup> is not supported by his analysis, and Mr. Boedeker has no proof that the minute number of Cree purchasers in his sample is similar to the large number of purchasers of other LED light bulb brands in his sample. It is unclear whether Mr. Boedeker’s conjoint survey reflects the preferences of Cree purchasers, as his sample consisted of LED light bulb purchasers generally.

**IV. MR. BOEDEKER’S CONJOINT SURVEY IS RIFE WITH DESIGN FLAWS THAT RENDER IT INVALID**

38. Mr. Boedeker’s flawed and biased conjoint survey design cannot yield valid results. His conjoint choice tasks reflect an unrealistic marketplace scenario (i.e., including neither

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<sup>51</sup> Boedeker Report, Table 2 and “FinalLEDpilot010719.xlsx.” See also “Section III.C - T-test Power Calculation.pdf.”

<sup>52</sup> Power is the probability that a statistical test will lead to statistically significant results (given there is indeed a difference to measure). Academic literature recommends that researchers aim for a power of 0.8. See Cohen, J., “A Power Primer,” *Psychological Bulletin*, Vol. 112, No. 1, 1992, pp. 155-159, at p. 155.

<sup>53</sup> Boedeker Report, ¶ 115.

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relevant bulb type options nor actual Cree light bulb prices) and ignores the results of his exploratory “Pre-Test” (i.e., not including the “important” attributes from his “Pre-Test” survey in his conjoint survey). In his presentation of attributes, Mr. Boedeker biases respondents by drawing extra attention to the lifetime concept by including leading language on every single choice screen (i.e., comparisons to “cheap” bulbs) and by providing two separate attributes related to product life. Mr. Boedeker further exacerbates the flaws in his choice task by describing an attribute level only as “No Claim” in his “Comparison to cheap LED light bulbs” attribute. As a result, one cannot be sure as to how respondents interpreted the absence of the claim. Do respondents ignore that attribute? Do they try to infer a claim from the other information provided? Especially in the absence of a proper pretest, Mr. Boedeker cannot know how respondents interpreted “No claim.”<sup>54</sup>

39. On top of these complicating and confusing factors, Mr. Boedeker also presents excessively complex choice tasks that likely resulted in respondents not paying sufficient attention to each choice screen.

**A. Mr. Boedeker’s conjoint choice tasks do not reflect a realistic marketplace**

*i. Mr. Boedeker’s conjoint survey ignores the results of his “Pre-Test” and relies on an arbitrary set of attributes for his choice tasks*

40. Despite having claimed that “the results from the pre-test survey will then guide the choice of attributes for the conjoint study,”<sup>55</sup> Mr. Boedeker does not explain how he ended up choosing the attributes in his conjoint survey. Notably, for example, despite the attribute “brightness / light output” appearing as the second most important attribute in his “Pre-Test” survey

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<sup>54</sup> In his deposition, Mr. Boedeker suggests that would have preferred to present respondents with a blank space instead of “No claim.” Boedeker Deposition, pp. 176-177. However, this alternative does not in any way resolve the issue. It is not clear how respondents would interpret a blank attribute level.

<sup>55</sup> Boedeker Report, ¶ 63.

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results, Mr. Boedeker does not include a brightness-related attribute in his conjoint survey.<sup>56</sup> Further, essential attributes such as “brand” and other potentially relevant characteristics such as “made / assembled in USA” did not appear in Mr. Boedeker’s conjoint survey, despite being valued more highly by “Pre-Test” respondents than some attributes that he *did* include in his conjoint survey (e.g., “dimmable”). A reliable conjoint survey should consist of attributes that are important and relevant to consumers in their purchase decisions.<sup>57</sup> Mr. Boedeker’s conjoint survey presents consumers with a more or less arbitrary set of attributes and therefore lacks realism and fails to present a market-typical scenario to respondents. Without presenting a scenario that reflects realistic choices, Mr. Boedeker cannot reliably use his conjoint data to assess actual consumer preferences.

*ii. Mr. Boedeker examines an unrealistic purchase decision by focusing exclusively on a specific type of LED light bulbs in his choice tasks*

41. Mr. Boedeker’s choice tasks were also unrealistic due to the exclusive focus on LED light bulbs. Each of Mr. Boedeker’s respondents was presented with 12 choice screens and given the option of choosing among five light bulbs on each of the choice screens — all of which were LED light bulbs. The presentation of exclusively LED light bulbs is not a representative choice set for LED light bulb purchasers. Both publicly available data on consumer

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<sup>56</sup> Interestingly, in Table 4 of his report and his conjoint survey script, Mr. Boedeker lists a brightness-related attribute, “lumen,” as an “attribute presented to survey respondents.” However, in the final screenshots and design of his conjoint survey, there was no “lumen” attribute, suggesting that at some point Mr. Boedeker had included “lumen” but subsequently, for whatever reason, decided to remove it. Boedeker Report, Table 4; “LED Conjoint Survey.docx.”

<sup>57</sup> “Several alternate means exist for identifying the attributes which are relevant to consumers in forming their preferences. A preliminary data collection effort, questioning consumers regarding attributes important to them, usually helps in identifying those attributes that are most frequently regarded as relevant [...] repertory grid, focus group interviews, or judgments of product managers, retailers and others knowledgeable about the product/service and its uses can be used for this purpose.” Green, P.E., and V. Srinivasan, “Conjoint Analysis in Consumer Research: Issues and Outlook,” *Journal of Consumer Research*, Vol. 5, No. 2, 1978, pp. 103-123, at pp. 104-105. *See also*, Lehmann, D. R., S. Gupta, and J. H. Steckel, *Marketing Research*, Addison Wesley Educational Publishers Inc., 1998, at p. 546; Orme (2006), at p. 43-46.

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purchases and Mr. Boedeker's own "Pre-Test" survey demonstrate that typical purchasers of LED light bulbs consider other types of light bulbs (e.g., incandescent or halogen light bulbs) before making their purchase selections. As a result, Mr. Boedeker's conjoint survey presented respondents with unrealistic choice sets that do not reflect the breadth of products that they would consider in the marketplace.

42. A publicly available report from the U.S. Department of Energy on the U.S. lighting market in 2015 showed that residential consumers utilize different types of light bulbs in different rooms, suggesting that consumers who purchase LEDs are also considering and buying other types of light bulbs.<sup>58</sup>

**Figure 3. Overview of Light Bulb in U.S. Homes (Year: 2015, Counts by Room)<sup>59</sup>**

	Incandescent	Halogen	CFL	Linear Fluorescent	HID	LED	Other	Total
Basement(s)	32%	15%	36%	11%	0%	6%	0%	100%
Bathroom(s)	45%	16%	31%	3%	0%	6%	0%	100%
Bedroom(s)	32%	19%	41%	1%	0%	7%	0%	100%
Closet(s)	31%	20%	42%	4%	0%	4%	0%	100%
Dining Room(s)	53%	17%	23%	0%	0%	7%	0%	100%
Exterior(s)	32%	27%	32%	2%	0%	6%	1%	100%
Garage(s)	11%	5%	12%	69%	0%	3%	0%	100%
Hall(s)	46%	11%	34%	0%	0%	7%	0%	100%
Kitchen(s)	28%	14%	29%	19%	0%	10%	0%	100%
Laundry / Utility Room(s)	17%	14%	41%	22%	0%	4%	1%	100%
Living / Family Room(s)	36%	16%	39%	1%	0%	7%	0%	100%
Office(s)	33%	11%	41%	6%	0%	9%	0%	100%
Other	37%	12%	31%	11%	0%	9%	0%	100%
<b>Average</b>	<b>35%</b>	<b>16%</b>	<b>33%</b>	<b>8%</b>	<b>0%</b>	<b>7%</b>	<b>0%</b>	<b>100%</b>

43. According to the U.S. Energy Information Administration's 2015 Residential Energy

Consumption Survey, only 3.6% of all households with LED light bulbs installed indoors

<sup>58</sup> "2015 U.S. Lighting Market Characterization," *U.S. Department of Energy*, November 2017, available at [https://www.energy.gov/sites/prod/files/2017/12/f46/lmc2015\\_nov17.pdf](https://www.energy.gov/sites/prod/files/2017/12/f46/lmc2015_nov17.pdf) ("U.S. Lighting Market"), p. 65.

<sup>59</sup> U.S. Lighting Market, Table 4.12.

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have exclusively LED light bulbs; the rest use some combination of light bulb types.<sup>60</sup> I understand that even when consumers are looking for LED light bulbs for a particular application, consumers still consider a variety of different types of LED light bulbs (e.g., light bulbs of various wattages, reflector/downlight/specialty light bulbs in addition to the standard A-type).<sup>61</sup> Mr. Boedeker's decision to only include two wattages of standard A-type LED light bulbs in his conjoint survey completely ignores this market reality.

44. Both Mr. Boedeker's "Pre-Test" survey and his conjoint survey screener show that his respondents did not exclusively purchase LED light bulbs. In his "Pre-Test" survey, 37.4% of Mr. Boedeker's respondents indicated that they had also purchased incandescent light bulbs, while 33%, 26.6%, and 20.6% indicated that they had also purchased CFL light bulbs, fluorescent tubes, and halogen light bulbs, respectively.<sup>62</sup> Similarly, in his conjoint survey, 29.9% of Mr. Boedeker's respondents indicated that they had purchased incandescent light bulbs, while 27.2%, 22.7%, and 22.0% indicated that they had also purchased CFL light bulbs, fluorescent tubes, and halogen light bulbs, respectively.<sup>63</sup> Mr. Boedeker's own data demonstrate that a more representative choice set would include other, non-LED light bulbs.
45. Additionally, Mr. Boedeker's choice tasks present every light bulb option with a lifetime savings comparison *relative to incandescent* light bulbs (e.g., "Lasts 13+ years (15,000 hours) with estimated lifetime savings of \$82.50 over incandescent bulbs"). Yet, Mr. Boedeker provides no incandescent light bulbs as a choice alternative.

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<sup>60</sup> In 2015, 28.6% (33.8 million) of U.S. homes had "at least one LED bulb" installed indoors. Only 1.0% (1.2 million) of U.S. homes had all light bulbs as LEDs. "Table HC5.1 Lighting in U.S. homes by housing unit type, 2015" *U.S. Energy Information Administration*, February 2017, available at <https://www.eia.gov/consumption/residential/data/2015/hc/php/hc5.1.php>.

<sup>61</sup> Communication with Scott Schwab, March 8, 2019.

<sup>62</sup> Boedeker Report, Figure 12.

<sup>63</sup> "FinalLED011519.xlsx."

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46. Even in the LED light bulbs he does present, Mr. Boedeker does not include realistic attributes for those products. In addition to not reflecting realistic price ranges for Cree LED light bulbs, which I will discuss below, Mr. Boedeker's "Warranty" and "Comparison to cheap LED light bulbs" attributes were not based on any actual representations present in the LED light bulb marketplace.<sup>64</sup>

*iii. Mr. Boedeker's prices do not accurately reflect the range of prices for Cree light bulbs in the marketplace*

47. Even though Mr. Boedeker spends considerable time discussing marketplace supply and equilibrium prices in his report,<sup>65</sup> the ranges of prices in his conjoint survey are too low and too narrow to reflect a realistic marketplace. Mr. Boedeker claims that he chose prices that were "representative prices for a 60 W/100W light bulb,"<sup>66</sup> resulting in prices ranges of "\$0.99 to \$6.99 for 60W equivalent LED light bulbs and \$2.99 to \$10.99 for 100W equivalent LED light bulbs."<sup>67</sup> However, in his review of prices available at Amazon.com, HomeDepot.com, and Lowes.com depicted in his Figure 25, Mr. Boedeker's backup materials indicate that he considered only two Cree light bulbs out of the 55 light bulbs listed across brands for 60W and zero Cree bulbs out of the 52 light bulbs listed across brands for

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<sup>64</sup> "Q...Do you know whether Cree has ever had a warranty for a consumer LED bulb that is consistent with levels one, two, or three in the warranty row between 2015 and 2019?...THE WITNESS: I'm not aware of -- I have not studied any warranties that Cree may or may not have had. Again, this is, like, in the conjoint menu having the warranty attribute with three different levels to see if consumers show -- if -- if any of these levels has different impacts on consumer demand, right? That's what this is for. So this -- in the actual study, this could easily be replaced with -- with warranties that were out there in the market by Cree or any other retailer, but since I didn't do a separate warranty analysis or study, I used these three levels." Boedeker Deposition, p. 161. "Q. Have you seen a representation on the website of any consumer LED bulb manufacturer that compares that manufacturer's bulbs to cheap LED bulbs? A. I -- I don't recall ever having seen that." Boedeker Deposition, p. 78.

<sup>65</sup> Boedeker Report, ¶¶ 21-25.

<sup>66</sup> Boedeker Report, ¶ 131.

<sup>67</sup> Boedeker Report ¶ 132.

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100W.<sup>68</sup> I understand that prices for Cree light bulbs have been as high as around \$19.99 per light bulb,<sup>69</sup> and that in fact, according to the Complaint in this matter, the Plaintiff paid between \$15 and \$20 for each of his three Cree 100 Watt Standard A-Type light bulbs.<sup>70</sup> A quick search on Amazon.com, one of the websites Mr. Boedeker used to guide his price levels, corroborated this price range in the current marketplace as well. Cree light bulbs in the exact same packaging as in Mr. Boedeker's Figure 1 had per-unit prices as high as \$18.85 for a 60W-equivalent Cree light bulb and \$19.19 for a 100W-equivalent Cree light bulb on Amazon.com.<sup>71</sup> These real-world prices are much higher than Mr. Boedeker's \$0.99-\$6.99 and \$2.99-\$10.99 price ranges for these light bulb types.<sup>72</sup> In other words, actual market prices for Cree light bulbs can be almost two to three times as high as the maximum price presented in Mr. Boedeker's conjoint survey, and his prices do not reflect the positioning of Cree as a premium light bulb brand.<sup>73</sup> While a well-designed conjoint survey does not need to capture every price found in the real-world marketplace, it should make an effort to reflect the range of readily-available prices of the products in the market.<sup>74</sup> Without that, the

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<sup>68</sup> "Lightbulb Price Research (60&100W Equiv).xlsx."

<sup>69</sup> Communication with Scott Schwab, March 8, 2019.

<sup>70</sup> Complaint, ¶ 36.

<sup>71</sup> "Cree BA19-08027OMB-12DE26-3\_1 60W Equivalent 2700K A19 LED Light Bulb with 4Flow Filament Design, Soft White," *Amazon.com*, available at [https://www.amazon.com/BA19-08027OMB-12DE26-3\\_1-Equivalent-2700K-Filament-Design/dp/B015R68O8Q](https://www.amazon.com/BA19-08027OMB-12DE26-3_1-Equivalent-2700K-Filament-Design/dp/B015R68O8Q), visited February 27, 2019. On this date, this bulb also had 67 Amazon reviews, indicating that actual consumers had purchased this bulb; "Cree SA21-16027MDFD-12DE26-1-11 Led 100W Replacement A21 Soft White (2700K) Dimmable Light Bulb," *Amazon.com*, available at <https://www.amazon.com/SA21-16027MDFD-12DE26-1-11-Replacement-White-2700K-Dimmable/dp/B01K7ZW73A/?th=1>, visited February 27, 2019. On this date, this bulb also had 164 Amazon reviews, indicating that actual consumers had purchased this bulb.

<sup>72</sup> Boedeker Report, ¶ 132.

<sup>73</sup> Communication with Scott Schwab, March 8, 2019.

<sup>74</sup> Interestingly, Mr. Boedeker appears to have previously considered higher and wider price ranges for both the 60W and 100W bulbs in his conjoint. His conjoint survey script contains per-bulb prices of \$3.99-\$11.99 for 60W replacement bulbs and \$5.99-\$13.99 for 100W replacement bulbs. "LED Conjoint Survey.docx."

imputed price-attribute tradeoffs obtained from the conjoint analysis (and the resulting computed economic loss) cannot be generalized to the price points actually found in the marketplace.

**B. Leading language on every single choice screen of Mr. Boedeker's conjoint study artificially inflates respondents' perceived value of the Longevity Claims**

48. Compounding the concerns related to the lack of market realism, each choice screen of Mr. Boedeker's conjoint study inflates his willingness-to-pay measurement by biasing respondents towards noting that a low light bulb lifetime can be equated with a "cheap" product. Specifically, Mr. Boedeker presents an attribute titled "Comparison to cheap LED light bulbs,"<sup>75</sup> which I will refer to as the "comparative lifetime claim." Respondents are repeatedly shown the term "cheap," which is a leading adjective loaded with negative connotations.<sup>76</sup> Mr. Boedeker reinforces this characterization with the leading nature of his attribute description.<sup>77</sup>
49. He also draws undue attention to this attribute relative to the others by presenting it as the only attribute with a negative connotation. By drawing undue attention to the comparative lifetime claim, Mr. Boedeker's choice screens and conjoint attribute descriptions are prone to

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<sup>75</sup> See, for example, Boedeker Report, Figure 26.

<sup>76</sup> Merriam-Webster defines "cheap" as "of inferior quality or worth." "Cheap," *Merriam-Webster*, available at <https://www.merriam-webster.com/dictionary/cheap>, accessed on February 18, 2019. In addition, Mr. Boedeker notes that respondents' interpretation of "cheap" likely varies. "Q. Okay. But sitting here today, can you tell me what "cheap LED bulbs" means in the context of your conjoint study? A. In the context of the conjoint study, it is a terminations that refers to a lower price without quantifying the lower price [...] So it basically mirrors, more or less, a purchase decision whether some unspecified -- quantitatively unspecified information but the consumer reacts to it, right? I mean, if somebody -- for somebody who has a low budget, \$4 may be expensive and \$1 is cheap. For somebody who pays \$15, anything under \$5 may be cheap." Boedeker Deposition, p. 65.

<sup>77</sup> In Mr. Boedeker's conjoint study, the "Comparison to cheap LED light bulbs" attribute is described as "Light bulbs differ in price and quality. Here we offer under certain conditions that the LED light bulb will last six times longer than cheap LED light bulbs." Boedeker Report, Table 4.

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leading respondents to overemphasize this attribute. As a result, respondents' perceived value of the attribute is likely artificially inflated. This is a critical mistake, as the goal of a conjoint survey is to measure preferences, and not to generate or amplify them.

50. Academic literature has demonstrated that the language used in surveys has an influence on how respondents answer questions.<sup>78</sup> One such phenomenon is "focusing," by which respondents give more weight to "[e]asily observed and distinctive differences" than they would in reality.<sup>79</sup> A burdensome conjoint survey can exacerbate instances of "focusing." For example, a 2001 article comparing the efficacy of conjoint and self-explicated survey approaches found that "especially when a larger number of attributes is used in a full profile conjoint analysis, respondents tend to focus on just a subset of attributes while neglecting the other ones."<sup>80</sup> By making the lifetime attributes artificially prominent, and by including more attributes than respondents can likely process or are even willing to process (see Section IV.E), Mr. Boedeker's conjoint survey design risks encountering "severe biases in estimating partworths."<sup>81</sup>

**C. Mr. Boedeker's comparative lifetime claim attribute presents a meaningless attribute level that deviates from basic conjoint design rules, yielding invalid results**

51. In addition to drawing respondents' attention to the comparative lifetime claim attribute, Mr. Boedeker does not sufficiently define the comparative lifetime claim attribute and therefore

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<sup>78</sup> Payne, S.L., *The Art of Asking Questions*, Princeton University Press, ("Payne") 1951.

<sup>79</sup> Schkade, D.A. and D. Kahneman, "Does Living in California Make People Happy? A Focusing Illusion in Judgments of Life Satisfaction," *Psychological Science*, Vol. 9, No. 5, 1998, pp. 340-346, at p. 340.

<sup>80</sup> Sattler, H. and S. Hensel-Börner, "A Comparison of Conjoint Measurement with Self-Explicated Approaches," *Conjoint Measurement: Methods and Applications*, 2<sup>nd</sup> Edition, Gustafsson, A., A. Herrmann, and F. Huber (Eds.), Springer Verlag, 2001 ("Sattler and Hensel-Borner"), at p. 125.

<sup>81</sup> Sattler and Hensel-Borner, at p. 125.

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has no way of knowing how respondents interpreted the attribute and its levels. He does not provide respondents with a concrete alternative to the claim. Specifically, respondents are either told that the light bulb “will last six times longer than cheap LED light bulbs” or “No claim.”<sup>82</sup> Respondents are not told what “No claim” means and how they should interpret the lack of a claim. For example, some respondents may think “No claim” means that the light bulb will last as long as “cheap” LEDs while others may think that “No claim” means that the light bulb will last, for example, three times longer than a cheap LED light bulb. Mr. Boedeker has no way of knowing how respondents interpreted “No claim,” or if they inferred its meaning from other attributes. If respondents did indeed infer meaning from other attributes, these inferences would likely be inconsistent not only across choice tasks, but within them as well. “No claim” is not an attribute level, but essentially a lack thereof.

52. When faced with an attribute level of simply “No claim,” respondents are missing information about how long the light bulb lasts relative to “cheap LED light bulbs.”

Academic literature has demonstrated that when consumers are missing information that they would expect to see about an attribute, they tend to perform a “discounting of alternatives with missing information,” in which they overcompensate for the missing information and perceive a lower value.<sup>83</sup> For example, a study of consumers’ inferences about missing product characteristics in beer found that, in the absence of a description, consumers inferred

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<sup>82</sup> I understand that this “will last six times longer than cheap LED light bulbs” claim has not been used in the packaging or advertising of Cree light bulbs. Communication with Scott Schwab, March 8, 2019.

<sup>83</sup> Huber, J. and J. McCann, “The Impact of Inferential Beliefs on Product Evaluations,” *Journal of Marketing Research*, Vol. 19, No. 3, 1982, pp. 324-333 (“Huber and McCann”), at p. 331. *See also*, Meyer, R.J., “A Model of Multiattribute Judgments under Attribute Uncertainty and Informational Constraint,” *Journal of Marketing Research*, Vol. 18, No. 4, 1981, pp. 428-441.

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a below-average level for the missing characteristic.<sup>84</sup> Similarly, a study of subjects choosing college courses based on a set of attributes found that only partially described courses were likely to be devalued by respondents, who “respond to such options as if their status were below par on the dimension that is not described” but do not automatically infer the lowest possible level.<sup>85</sup>

53. While some light bulbs in reality may bear a claim that others do not, the setup of Mr. Boedeker’s conjoint survey explicitly draws respondents’ attention to the lack of a claim, which they may not have otherwise noticed in a real-life purchasing situation. In Mr. Boedeker’s conjoint survey, “No claim” is not a clear attribute-level definition. To ensure meaningful results, the statistical model that Mr. Boedeker employs as part of his ultimate analysis requires that precise attribute-level definitions be provided in the conjoint survey. Mr. Boedeker’s lack of clear attribute-level definitions renders the outcomes of his conjoint survey — including part-worths, demand curves, and willingness-to-pay values — invalid.

**D. By providing respondents with the lifetime concept as two separate attributes in the choice task, Mr. Boedeker creates choice options that amplify respondents’ value of lifetime in the choice tasks. He also allows for the choice tasks to provide inconsistent information**

54. Mr. Boedeker artificially amplifies the importance of the at-issue stated light bulb lifetime attribute by presenting it together with the comparative lifetime claim discussed above. The latter guides respondents’ attention to the lifetime of the light bulb by stating that the LED product displayed on the conjoint survey screen “will last six times longer than cheap LED light bulbs.”<sup>86</sup> In other words, Mr. Boedeker presents *two* attributes related to the lifetime of

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<sup>84</sup> Huber and McCann, at p. 331.

<sup>85</sup> Yates, J.F., C.M. Jagacinski, and M.D. Faber, “Evaluation of Partially Described Multiattribute Options,” *Organizational Behavior and Human Performance*, Vol. 21, 1978, pp. 240-251, at pp. 248-249.

<sup>86</sup> Boedeker Report, Table 4, Figures 26-27.

a light bulb, and primes respondents to perceive “lifetime” as a stand-out attribute of high importance.

55. Mr. Boedeker’s choice screens are also highly likely to confuse respondents by repeatedly providing inconsistent information in the lifetime and comparative lifetime claim attributes on the same choice screen. These inconsistencies result in LED light bulb product profiles that are not and cannot be available in the real-world marketplace.<sup>87</sup>
56. When faced with a choice screen of products that do not make sense, respondents cannot provide reliable answers to the choice task. Consequently, respondents either try to infer the meaning of some attributes from the descriptions of other attributes, ignore or devalue product attributes, or exclude complete products from their choice analysis.
57. Mr. Boedeker’s choice screens are subject to three prominent types of inconsistencies between the lifetime attribute and the comparative lifetime claim. This is not an exhaustive list, as there are other types of inconsistencies in Mr. Boedeker’s choice screens. The list below is only three especially prominent inconsistencies.
- 1) *Cheapest Bulb Cannot Be Superior to “Cheap Bulbs.”* The cheapest bulb is the only one with the claim “will last six times longer than cheap LED light bulbs” — even though it is already the cheapest LED light bulb shown. This inconsistency occurs when exactly one of the five bulbs carries the comparative lifetime claim and is the lowest-priced bulb.
  - 2) *A Bulb with the Claim Does Not Last Six Times Longer.* Relative to the cheapest bulb in the choice set, a bulb with the claim “will last six times longer than cheap LED light bulbs” does not actually last six times longer based on the number of years stated in the lifetime attribute. This inconsistency can occur when exactly

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<sup>87</sup> For a discussion of such non-representative product profiles, see Steckel, J.H., W.S. DeSarbo, and V. Mahajan, “On the Creation of Acceptable Conjoint Analysis Experimental Designs,” *Decision Sciences*, Vol. 22, No. 2, 1991, pp. 435-442.

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one of the five bulbs carries the comparative lifetime claim and is not the lowest-priced bulb.<sup>88</sup>

- 3) *Multiple Bulbs with the Claim have Different Lifetimes and Cannot All Last “Six Times Longer.”* If the comparative lifetime claim appears two or more times among the five products shown and the lifetimes of these options are not the same, then the choice set contains inconsistencies.

58. *(1) Cheapest Bulb Cannot Be Superior to “Cheap Bulbs.”* As an example, the sample choice screen in Figure 26 of the Boedeker Report, shown in Figure 4 below, presents only Option 2 with the comparative lifetime claim.

**Figure 4. Example of Mr. Boedeker’s Choice Screen<sup>89</sup>**

For a **10 Watt LED light bulb of size A19 to replace a 60 Watt incandescent bulb**, please indicate which of the given options you would select. 

	Option 1	Option 2	Option 3	Option 4	Option 5
 Indoor / Outdoor	Yes	No	Yes	No	No
 Dimmable	Yes	Yes	No	No	Yes
 Comparison to cheap LED light bulbs	No claim	The LED light bulb will last six times longer than cheap LED light bulbs.	No claim	No claim	No claim
 Lifetime	Lasts 13+ years (15,000 hours) with estimated lifetime savings of \$82.50 over incandescent bulbs.	Lasts 13+ years (15,000 hours) with estimated lifetime savings of \$82.50 over incandescent bulbs.	Lasts 22+ years (25,000 hours) with estimated lifetime savings of \$137.50 over incandescent bulbs.	Lasts 13+ years (15,000 hours) with estimated lifetime savings of \$82.50 over incandescent bulbs.	Lasts 4+ years (5,000 hours), with estimated lifetime savings of \$27.50 over incandescent bulbs.
 Color	Soft white (2700K)	Daylight (5000K)	Soft white (2700K)	Soft white (2700K)	Daylight (5000K)
 Warranty	10-year 100% satisfaction guarantee, redeemable at retailer	10 years with original receipt and packaging, have to pay for shipment	10 years with original receipt and packaging, have to pay for shipment	Standard 90-day warranty, redeemable at retailer	10 years with original receipt and packaging, have to pay for shipment
 Price	\$5.49	\$0.99	\$2.49	\$6.99	\$6.99
Which option would you prefer?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<sup>88</sup> If, for example, the bulb with the comparative lifetime claim had a lifetime of “31+ years,” I consider there to be no inconsistency when the cheapest bulb in the same set has a lifetime of “4+ years.”

<sup>89</sup> Excerpt of Boedeker Report, Figure 26 (emphasis added).

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While Option 2 includes the comparative lifetime claim, it also comes at the lowest price on the screen, \$0.99. Respondents who follow the comparative lifetime claim will look for the cheapest option, and see that it is Option 2. They would struggle to understand how Option 2 could have a lifetime six times longer than its own lifetime. This scenario does not make sense. Mr. Boedeker presented 50.9% (509 of 1,000) of his respondents with at least one choice screen similar to Figure 4 with this inconsistency.<sup>90</sup>








(2) A Bulb with the Claim Does Not Last Six Times Longer. As another example, Figure 27 of the Boedeker Report, shown in Figure 5 below, presents Option 5 with the comparative lifetime claim, and the other Options 1-4 as products with “No claim.”

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<sup>90</sup> See Exhibit 1. Analogously, 6.3% (750 of 12,000) of choice screens shown to respondents contained this inconsistency. “LEDdesign010819.csv;” “CBC60Watt011519.csv;” “CBC100Watt011519.csv.”

*Confidential***Figure 5. Example of Mr. Boedeker's Choice Screen<sup>91</sup>**

For a **10 Watt LED light bulb of size A19 to replace a 60 Watt incandescent bulb**, please indicate which of the given options you would select. 

	Option 1	Option 2	Option 3	Option 4	Option 5
 Indoor / Outdoor	Yes	No	Yes	No	No
 Dimmable	No	No	No	Yes	Yes
 Comparison to cheap LED light bulbs	No claim	No claim	No claim	No claim	The LED light bulb will last six times longer than cheap LED light bulbs.
 Lifetime	Lasts 13+ years (15,000 hours) with estimated lifetime savings of \$82.50 over incandescent bulbs.	Lasts 13+ years (15,000 hours) with estimated lifetime savings of \$82.50 over incandescent bulbs.	Lasts 13+ years (15,000 hours) with estimated lifetime savings of \$82.50 over incandescent bulbs.	Lasts 22+ years (25,000 hours) with estimated lifetime savings of \$137.50 over incandescent bulbs.	Lasts 13+ years (15,000 hours) with estimated lifetime savings of \$82.50 over incandescent bulbs.
 Color	Soft white (2700K)	Daylight (5000K)	Daylight (5000K)	Daylight (5000K)	Daylight (5000K)
 Warranty	Standard 90-day warranty, redeemable at retailer	Standard 90-day warranty, redeemable at retailer	Standard 90-day warranty, redeemable at retailer	10-year 100% satisfaction guarantee, redeemable at retailer	10 years with original receipt and packaging, have to pay for shipment
 Price	\$0.99	\$0.99	\$6.99	\$5.49	\$3.99
Which option would you prefer?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

When respondents read the choice screen provided in Figure 5, they see confusing information that does not allow for unbiased, realistic tradeoffs. In this particular case, respondents may look at Option 5, priced at \$3.99 and the only option with the comparative lifetime claim, and see that it “will last six times longer than cheap LED light bulbs.” Respondents then look for a “cheap” LED light bulb for comparison and find Options 1 and 2 both priced at \$0.99, the cheapest possible price. They would struggle to understand how Options 1, 2, and 5 offer the same 13+ year lifetime, yet Option 5 is supposed to last six times longer than Options 1 and 2, the “cheap” LED light bulbs. This scenario does not make

<sup>91</sup> Boedeker Report, Figure 27 (emphasis added).








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sense. Mr. Boedeker presented 74.4% (744 of 1,000) of his respondents with at least one choice screen with this inconsistency.<sup>92</sup>

59. *(3) Multiple Bulbs with the Claim have Different Lifetimes and Cannot All Last “Six Times Longer.”* The third type of inconsistency occurs when respondents are faced with multiple options bearing the comparative lifetime claim, such as Figure 6 below.

**Figure 6. Example of Mr. Boedeker’s Choice Screen<sup>93</sup>**

For a **10 Watt LED light bulb of size A19 to replace a 60 Watt incandescent bulb**, please indicate which of the given options you would select. 

	Option 1	Option 2	Option 3	Option 4	Option 5
 Indoor / Outdoor	Yes	No	No	No	No
 Dimmable	No	No	Yes	No	No
 Comparison to cheap LED light bulbs	The LED light bulb will last six times longer than cheap LED light bulbs.	The LED light bulb will last six times longer than cheap LED light bulbs.	No claim	The LED light bulb will last six times longer than cheap LED light bulbs.	No claim
 Lifetime	Lasts 22+ years (25,000 hours) with estimated lifetime savings of \$137.50 over incandescent bulbs.	Lasts 4+ years (5,000 hours), with estimated lifetime savings of \$27.50 over incandescent bulbs.	Lasts 22+ years (25,000 hours) with estimated lifetime savings of \$137.50 over incandescent bulbs.	Lasts 13+ years (15,000 hours) with estimated lifetime savings of \$82.50 over incandescent bulbs.	Lasts 31+ years (35,000 hours) with estimated lifetime savings of \$192.50 over incandescent bulbs.
 Color	Daylight (5000K)	Soft white (2700K)	Soft white (2700K)	Daylight (5000K)	Daylight (5000K)
 Warranty	10 years with original receipt and packaging, have to pay for shipment	10 years with original receipt and packaging, have to pay for shipment	10-year 100% satisfaction guarantee, redeemable at retailer	10 years with original receipt and packaging, have to pay for shipment	10-year 100% satisfaction guarantee, redeemable at retailer
 Price	\$3.99	\$3.99	\$6.99	\$5.49	\$2.49
Which option would you prefer?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

60. When respondents read the choice screen provided in Figure 6, they see multiple options with the comparative lifetime claim, yet those options have different lifetimes. This scenario does not make sense, and respondents cannot reconcile these differences when comparing

<sup>92</sup> See Exhibit 1. Analogously, 10.2% (1,222 of 12,000) of choice screens shown to respondents contained this inconsistency. “LEDdesign010819.csv;” “CBC60Watt011519.csv;” “CBC100Watt011519.csv.”

<sup>93</sup> Excerpt of “LEDSURVEYCONJOINTSCREENSHOTS (1.14.19).pdf,” p. 19 (emphasis added).

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products. What are respondents to believe about the lifetime, if each option that “last[s] six times longer than cheap LED light bulbs” is shown with a different lifetime? Mr. Boedeker presented 100% (all 1,000) of his respondents with at least one choice screen with this inconsistency.<sup>94</sup>

61. Of note, a very similar inconsistency occurs in the Boedeker conjoint study when multiple light bulbs have the same lifetime attribute (e.g., “22+ years), and some carry the claim “will last six times longer than cheap LED light bulbs” while others do not carry the claim. For example, in Figure 6, Options 1 and 3 both provide lifetimes of “22+ years,” but only Option 1 would last six times longer while Option 3 does not. As mentioned above, respondents would have to attempt to wrangle with this discrepancy while making trade-offs.<sup>95</sup> Do they ignore the inconsistency, or do they attempt to infer the comparison from other information?
62. Choice screens on which respondents observe that one light bulb option “will last six times longer than cheap LED light bulbs,” while another light bulb option offers “No claim” are similarly problematic. Some respondents may try to overwrite “No claim” with wrongly inferred comparative lifetime claims by calculating the lifetime multiplier between remaining options.








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<sup>94</sup> See Exhibit 1. Analogously, 70.4% (8,447 of 12,000) of choice screens shown to respondents contained this inconsistency. “LEDdesign010819.csv;” “CBC60Watt011519.csv;” “CBC100Watt011519.csv.”

<sup>95</sup> I do not count this inconsistency separately, as it can occur in conjunction with any of the three types of inconsistencies I have described.

**Figure 7. Example of Mr. Boedeker's Choice Screen<sup>96</sup>**

For a **10 Watt LED light bulb of size A19 to replace a 60 Watt incandescent bulb**, please indicate which of the given options you would select. 

	Option 1	Option 2	Option 3	Option 4	Option 5
 Indoor / Outdoor	Yes	No	Yes	No	No
 Dimmable	Yes	Yes	No	No	Yes
 Comparison to cheap LED light bulbs	No claim	The LED light bulb will last six times longer than cheap LED light bulbs.	No claim	No claim	No claim
 Lifetime	Lasts 13+ years (15,000 hours) with estimated lifetime savings of \$82.50 over incandescent bulbs.	Lasts 13+ years (15,000 hours) with estimated lifetime savings of \$82.50 over incandescent bulbs.	Lasts 22+ years (25,000 hours) with estimated lifetime savings of \$137.50 over incandescent bulbs.	Lasts 13+ years (15,000 hours) with estimated lifetime savings of \$82.50 over incandescent bulbs.	Lasts 4+ years (5,000 hours), with estimated lifetime savings of \$27.50 over incandescent bulbs.
 Color	Soft white (2700K)	Daylight (5000K)	Soft white (2700K)	Soft white (2700K)	Daylight (5000K)
 Warranty	10-year 100% satisfaction guarantee, redeemable at retailer	10 years with original receipt and packaging, have to pay for shipment	10 years with original receipt and packaging, have to pay for shipment	Standard 90-day warranty, redeemable at retailer	10 years with original receipt and packaging, have to pay for shipment
 Price	\$5.49	\$0.99	\$2.49	\$6.99	\$6.99
Which option would you prefer?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

63. For example, in Figure 7 above respondents can infer that Option 3 lasts 22/13 times as long as Option 2, while Option 2 is supposed to last six times longer than the cheap bulbs.

Respondents can infer that Option 3 lasts roughly ten times ( $6 \times (22/13)$ ) as long as cheap bulbs – even in the absence of a claim. Letting respondents engage in such inferences and potentially overwrite other attributes on the choice screen is a crucial mistake in conjoint design.

64. All of the above mentioned inconsistencies within choice screens are present throughout Mr. Boedeker's conjoint design. They affect every respondent, likely forcing them to disengage

<sup>96</sup> Excerpt of Boedeker Report, Figure 26 (emphasis added).

from the choice tasks, take the survey less seriously, and provide nonsensical choices that do not reflect their true preferences. It is especially problematic that every single respondent in Mr. Boedeker's conjoint survey encountered one of these three types of unresolvable inconsistencies between the lifetime attribute and the comparative lifetime claim in *at least 8* of their 12 choice screens. Further, almost 80 percent of respondents were presented with these inconsistencies in *at least 10* of their 12 choice screens.<sup>97</sup> Presenting inconsistent attribute information to respondents is an error that cannot be adjusted for during the data analysis and that renders all of Mr. Boedeker's results invalid.

**E. Mr. Boedeker's excessively complex choice tasks likely resulted in disengaged respondents**

65. Choice-based conjoint designs implicitly assume that respondents look at each of the displayed alternatives and compare them by examining the levels of each attribute across the choice alternatives. Respondents then trade off the various attributes in order to arrive at a final choice. This process is complex and, as a result, the more attributes and attribute levels a choice screen displays, the more stress or cognitive burden the task imposes upon a respondent. Ultimately, an overly complex choice task will fatigue respondents by overloading them with excessive information.
66. Conjoint design guidelines recommend that there be no more than six attributes on a given choice screen.<sup>98</sup> Mr. Boedeker acknowledges this standard and states "[t]he literature recommends that Choice Based Conjoint studies involve about six or fewer attributes...to

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<sup>97</sup> "LEDdesign010819.csv;" "CBC60Watt011519.csv;" "CBC100Watt011519.csv." 86.8% (10,419) of the 12,000 choice screens shown to respondents were subject to one of the three types of inconsistencies I described. *See* Exhibit 1.

<sup>98</sup> Orme (2006), at pp. 33, 35, 43.

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address issues of fatigue and general ability of respondents to process information.”<sup>99</sup> Mr. Boedeker also notes that “some authors believe that the number of cells on a choice menu [...] should not exceed twenty while others tend to favor the notion that respondents are not hard pressed to process more pieces of information.”<sup>100</sup> Despite these acknowledgements, Mr. Boedeker presents respondents with five product profiles with seven attributes each, requiring respondents to process 35 cells of information per choice screen.

67. In Mr. Boedeker’s conjoint survey, respondents were confronted with much more information than they would be comfortable processing. Consumer information overload could easily impact how respondents view the information in front of them. Academic research has demonstrated that information overload makes respondents less likely to process all the information placed in front of them.<sup>101</sup>

68. Such behavior is often referred to as “satisficing,” and according to Krosnick and Presser (2010):

“Rather than expend the effort necessary to provide optimal answers, respondents may take subtle or dramatic shortcuts. In the former case, respondents may simply be less thorough in comprehension, retrieval, judgment, and response selection. They may be less thoughtful about a question’s meaning; search their memories less comprehensively; integrate retrieved information less carefully; or select a response choice less precisely (emphasis added).”<sup>102</sup>

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<sup>99</sup> Boedeker Report, ¶ 62.

<sup>100</sup> Boedeker Report, ¶ 62.

<sup>101</sup> Kivetz, R. and I. Simonson, “The Effects of Incomplete Information on Consumer Choice,” *Journal of Marketing Research*, Vol. 37, No. 4, 2000, pp. 427-448, at p. 428.

<sup>102</sup> Krosnick, J.A. and S. Presser, “Question and Questionnaire Design,” *Handbook of Survey Research*, 2<sup>nd</sup> Edition, Wright, J.D. and P.V. Marsden (Eds.), Emerald Group Publishing Limited, 2010, pp. 263-313, at p. 265.

69. While “authors” may have differing opinions about the number of cells respondents can comfortably process, Mr. Boedeker’s conjoint survey results themselves demonstrate that his 35 cells of information, presented 12 times, was overly burdensome for respondents and likely resulted in satisficing and invalid data.
70. The data from Mr. Boedeker’s conjoint survey suggest that many respondents likely did not pay adequate attention to each choice screen and satisficed. One quarter of respondents (250 of the 1,000) completed the choice tasks at a rate of approximately 11.7 seconds per choice screen.<sup>103</sup> Less than twelve seconds is hardly enough time to process the information of 35 cells of information, select a preferred light bulb, and then consider whether one would purchase the light bulb selected.<sup>104</sup> The fact that at least a quarter of respondents proceeded through the choice tasks at this rate indicates that the design of the choice tasks caused respondents to not pay attention to the choice task or to be unwilling to properly engage in the decision.
71. In addition to presenting respondents with an excessive amount of information, Mr. Boedeker did not specify to respondents that all other attributes not mentioned in the exercise should be assumed equal across the five products shown. Given such deficient instruction, it’s not clear how respondents performed the required comparisons and selected

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<sup>103</sup> In other words, 250 of the 1000 respondents went through all 12 choice tasks in 2 minutes 20 seconds or less. “FinalLED011519.xlsx.” Mr. Boedeker acknowledges that respondents progressing too quickly through the survey is a concern and that such respondents should be excluded from analysis. *See* Boedeker Deposition, pp. 204-205.

<sup>104</sup> Open-ended responses to Mr. Boedeker’s question, “Did you have a clear understanding of the questions in this survey?” indicate that some respondents found that the survey contained too much information. For example, respondents stated “Too many options,” “Too much data to comprehend,” and “what was the point of give [sic] so many options that weren’t really comparable.” “FinalLED011519.xlsx.”

a product. Consequently, Mr. Boedeker's conjoint data and resulting willingness-to-pay calculations are invalid.

**V. MR. BOEDEKER'S ANALYSES OF HIS CONJOINT DATA SUFFER FROM CONCEPTUAL AND TECHNICAL FLAWS**

72. Beyond the many critical design flaws of the conjoint survey, Mr. Boedeker's analyses of his conjoint data are conceptually and technically flawed. His method of calculating willingness-to-pay is not an accepted practice in conjoint studies, and he constructs what he calls "demand" curves with no consideration of actual products that exist in the marketplace. Despite discussing the concepts of both supply and demand in his theoretical framework, Mr. Boedeker does not account for supply-side dynamics in his conjoint analysis. Further, Mr. Boedeker's results are illogical. In particular, they suggest some respondents preferred shorter lifetimes to longer ones.

**A. Overview of Mr. Boedeker's conjoint analysis**

73. Mr. Boedeker's descriptions of his individual analyses are sparse and vague, and it is unclear from his produced backup how he arrived at some of the values in his report, such as the willingness-to-pay values in ¶ 170. Based on my review of Mr. Boedeker's statistical programs and his report, I understand the following:

74. First, Mr. Boedeker estimates a posterior distribution of 10,000 draws for the respondent level attribute part-worths; i.e., the individual utilities for each specific attribute level included in the conjoint survey, using Hierarchical Bayesian Estimation ("HBE") in

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Sawtooth.<sup>105,106</sup> When calculating each respondent’s attribute part-worths, Mr. Boedeker imposes a “monotonicity constraint” to ensure that the statistical model presumes respondents’ to gain less utility from higher prices, and more utility from lower prices.<sup>107</sup> He states that without such a constraint, “the utility estimates may yield higher numerical values for levels that seem to be lower in utility for some individuals, and thus seemingly indicate ‘illogical’ consumer choices.”<sup>108</sup> Mr. Boedeker further suggests that he imposed such a constraint to make “the demand curves...smoother” with “fewer extreme data points.”<sup>109</sup>

75. Second, Mr. Boedeker uses the part-worths estimates for each of the 10,000 draws of his estimated model to “construct the demand for the product when the advertised claim is believed to be true by the consumer at the point of purchase.”<sup>110</sup> For example, for the first draw of 10,000, Mr. Boedeker first calculates “the share of all respondents who would purchase a product constructed from a permutation of all attribute levels for a given price.”<sup>111</sup> Specifically, he computes the total utility (i.e., the sum of part-worths for each of the attributes) for each individual respondent for a given product profile (e.g., a light bulb with a lifetime of 31+ years) at each of the five different prices for a specific combination of

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<sup>105</sup> See Orme (2006), at pp. 1-5.

<sup>106</sup> Boedeker Report, ¶ 140. For a discussion of HBE, see Johnson, R.M., “Understanding HB: An Intuitive Approach,” *Sawtooth Software Research Paper Series*, 2000.

<sup>107</sup> Boedeker Report, ¶¶ 140-141. In his production materials, Mr. Boedeker provides the results of his analysis without the monotonicity constraint. He does not discuss these results in his report beyond stating that he “found very small differences between [the analysis with the constraint and the analysis without the constraint].” Boedeker Report, ¶ 144.

<sup>108</sup> Boedeker Report, ¶ 141.

<sup>109</sup> Boedeker Report, ¶ 143.

<sup>110</sup> Boedeker Report, ¶¶ 148, 152.

<sup>111</sup> Boedeker Report, ¶ 161.

attributes.<sup>112</sup> He then uses the total utility for each respondent at a specific price level to determine a probability share by comparing the total utility gained from purchasing the light bulb with the specified product profile to the utility of the “Outside-option,” (i.e., the option of choosing to not purchase any of the displayed light bulbs).<sup>113</sup> In other words, for the first draw of 10,000, Mr. Boedeker’s analysis calculates the fraction of survey respondents that prefer (i.e., would choose to purchase) the specified product at a specified price instead of not purchasing a light bulb at all.<sup>114</sup>

76. Next, Mr. Boedeker further aggregates the probability shares for the first draw by calculating the mean probability share across all respondents at each price point. The resulting five aggregated mean probability shares for each price form the input into a regression model that fits a regression line through these five data points, with the aggregated mean probability share on the x-axis and price on the y-axis.<sup>115</sup> Mr. Boedeker touts this fitted curve a “demand” curve.<sup>116</sup>

77. Mr. Boedeker constructs these types of “demand” curves for both the actual and the “but-for” world. Using the exact same approach as described above, for a given product profile, he varies the lifetime to be “4+ years” in the but-for world and 13+, 22+, or 31+ years in the

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<sup>112</sup> “LED Analysis - 60W - WPC.nb;” “LED Analysis - 100W - WPC.nb”

<sup>113</sup> “LED Analysis - 60W - WPC.nb;” “LED Analysis - 100W - WPC.nb”

<sup>114</sup> “LED Analysis - 60W - WPC.nb;” “LED Analysis - 100W - WPC.nb” I note that this does not reflect a marketplace decision. While it is certainly possible that a consumer can choose not to purchase anything, he or she likely has more alternatives than only purchasing a Cree light bulb, as represented by Mr. Boedeker’s conjoint, and purchasing nothing.

<sup>115</sup> “LED Analysis - 60W - WPC.nb;” “LED Analysis - 100W - WPC.nb”

<sup>116</sup> “LED Analysis - 60W - WPC.nb;” “LED Analysis - 100W - WPC.nb;” Boedeker Report, ¶ 161. The demand curve is fitted using a log-linear regression where linear prices are regressed over logged probability shares.

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actual world.<sup>117,118</sup> An example of such a pair of “demand” curves is presented in Figure 34 of Mr. Boedeker’s report.<sup>119</sup> As evident in this example, the “demand” curve for the actual world is located above the “demand” curve reflecting the but-for world. While Mr. Boedeker does not specify from which draw in his data these “demand” curves are fit, his statistical code indicates that he creates “demand” curve pairings for all possible light bulb product permutations for each of the 10,000 draws that resulted from the Hierarchical Bayesian estimation.<sup>120</sup>

78. Third, Mr. Boedeker suggests that all else equal, “when the consumer knows about the falsity of the Longevity Claims in the but-for world, the levels of the attributes change, and the light bulbs become less attractive to consumers leading to a downward shift of the demand curve.”<sup>121</sup> Mr. Boedeker appears to say that in a but-for world respondents understand the light bulb to have a (much shorter and less valuable) lifetime of 4+ years instead of, for example, 31+ years, which leads to a down-shift of the but-for “demand” curve. Ultimately, this shift is the basis for Mr. Boedeker’s economic loss calculation.<sup>122</sup>

79. As mentioned above, Mr. Boedeker creates numerous “demand” curve pairings: one for each of the possible product profiles for each of the 10,000 draws from his Hierarchical Bayesian model. Because Mr. Boedeker seeks to determine the difference in price between his “actual” and “but-for” “demand” curves, he calculates the distance between these curves at ten

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<sup>117</sup> Boedeker Report, ¶ 161.

<sup>118</sup> “LED Analysis - 60W - WPC.nb;” “LED Analysis - 100W - WPC.nb”

<sup>119</sup> Boedeker Report, ¶ 161.

<sup>120</sup> Boedeker Report, ¶ 164.

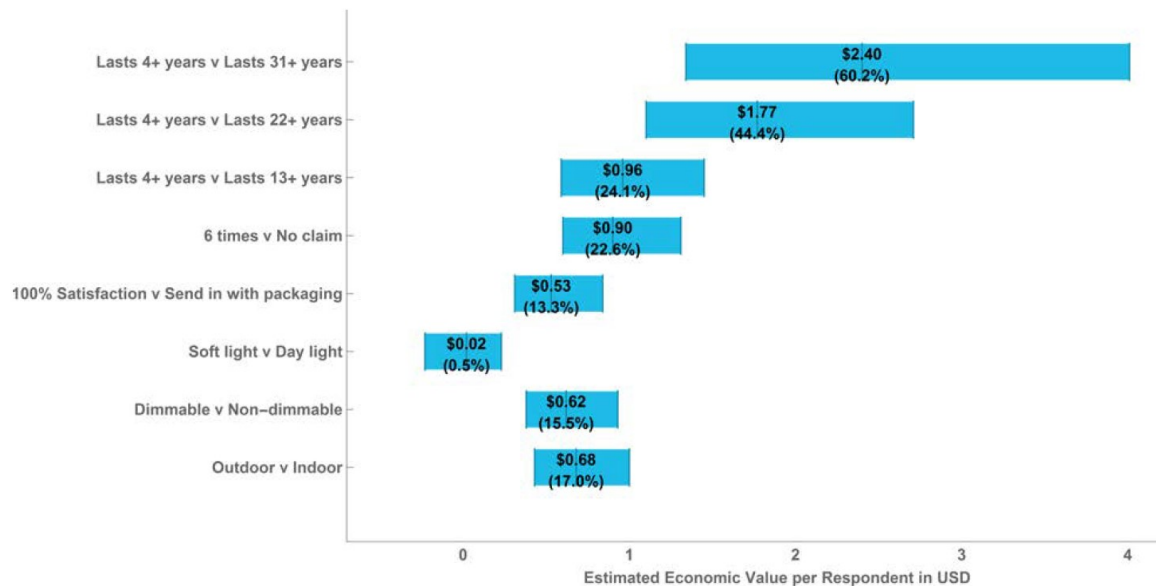
<sup>121</sup> Boedeker Report, ¶ 162.

<sup>122</sup> Boedeker Report, ¶ 162.

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different points – five corresponding to the x-axis probability shares from the but-for world “demand” curve and five corresponding to the x-axis probability shares from the actual world “demand” curve. As a last step, Mr. Boedeker then aggregates these 4.8 million distances by taking the median across all draws and all prices.<sup>123</sup> The result is his estimate of “economic loss” to consumers expressed in absolute dollars.<sup>124</sup> Ultimately, Mr. Boedeker estimates the “economic loss” associated with each attribute included in his conjoint survey, as displayed in Figure 8.<sup>125</sup>

**Figure 8. Example of “Economic Loss” Calculated Using Mr. Boedeker’s Method – 60W Replacement<sup>126</sup>**



<sup>123</sup> For each of the 10,000 draws, there are 48 possible products for each lifetime attribute level. Mr. Boedeker constructs two “demand” curves based on five price points each, resulting in 10 distance measures between the actual and but-for “demand” curves. As a result, there are  $10,000 \times 48 \times 10 = 4.8$  million distance measures. The 48 possible products are calculated as multiplying the levels for all non-lifetime non-price attributes ( $2 \times 2 \times 2 \times 3 \times 2$ ).

<sup>124</sup> Boedeker Report, ¶¶ 166-167; “LED Analysis - 60W - WPC.nb;” “LED Analysis - 100W - WPC.nb” Mr. Boedeker also constructs 90% confidence intervals across all of these “actual” versus “but-for” comparisons. Boedeker Report, ¶ 164, Figures 35 and 36.

<sup>125</sup> See Boedeker Report, Figures 35 and 36.

<sup>126</sup> Boedeker Report, Figure 35.

80. While Mr. Boedeker presents this vague framework as a way by which he can calculate “economic loss” associated with a 4+ year lifetime (versus a 13+, 22+, or 31+ year lifetime), he does not specify how he would determine the concrete damages to consumers associated with the alleged misconduct by Cree. Based on his methodology and his deposition testimony, it remains unclear as to how Mr. Boedeker’s conjoint methodology and analysis addresses the specific allegations stated in the Complaint.<sup>127</sup>

**B. Mr. Boedeker’s method of calculating willingness-to-pay is not in line with accepted practices in conjoint analysis**

81. Mr. Boedeker’s methodology for calculating consumers’ willingness-to-pay for the longevity claimed is not in line with accepted methodologies of conjoint analysis. Academic literature (and Sawtooth Software’s technical papers) suggest two commonly-used and tested approaches to calculating willingness-to-pay in conjoint analysis: computing dollar values corresponding to attribute utilities, and creating market simulations of realistic competitive scenarios.<sup>128</sup>

82. To compute dollar values corresponding to attribute utilities, one compares the change in price between different attribute levels to the change in utility. For example, if for a particular respondent a \$10 price level is 3 utility points and a \$5 price level is 1 utility point, each utility point for that respondent is equal to  $(\$10 - \$5) / (3 - 1) = \$2.50$ . The second method uses market simulations to incorporate a competitive context. A competitive scenario would be simulated with a few products in a realistic marketplace, and a simulation would

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<sup>127</sup> Specifically, Dr. Boedeker acknowledges that he included *three* longevity-related attributes in his conjoint survey but does not specify which, if any, would be used to determine damages. He simply states “And the but-for world that I’m measuring right now here is where they now have choices if one of these longevity claims would have a different value.” Boedeker Deposition, p. 203.

<sup>128</sup> Orme, B.K., “Assessing the Monetary Value of Attribute Levels with Conjoint Analysis: Warnings and Suggestions,” *Sawtooth Software*, 2001; Orme (2006), at pp. 74-78.

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determine baseline preference shares. After adjusting a particular attribute level for a product, for example, simulations would be run while adjusting the price of that product until the preference shares return to the baseline shares. The difference in price that achieves the same baseline shares would reflect the willingness-to-pay for that attribute level in a realistic competitive scenario.

83. While both of these established methods have advantages and drawbacks, Mr. Boedeker does not acknowledge these methods in his report. He instead uses an ad-hoc, overly complicated, unprecedented, and unproven method, without any theoretical foundation. Mr. Boedeker relies on pseudo-demand curves, unrealistic market scenarios, and irrelevant probability shares that assess the choice of a single hypothetical light bulb versus doing nothing (without any competitive context). He provides no explanation as to why he chose to deviate from both of the common methods that have been promoted in the established literature and invent his own.

**C. Mr. Boedeker does not consider the actual products available in the marketplace when constructing his “demand curves”**

84. Mr. Boedeker’s decision to take into account all “levels of attributes and prices across all possible permutations”<sup>129</sup> when constructing his “demand” curves results in unrealistic light bulb products. For example, based on his explanation and backup materials, among others, Mr. Boedeker constructs “demand” curves for a potential light bulb that has all of the more highly valued attributes such as Daylight, Dimmable, Outdoor, 10-year warranty at retailer but with a price tag of only \$0.99 and includes the resulting price differential in his economic

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<sup>129</sup> Boedeker Report, ¶ 164.

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loss calculations.<sup>130</sup> Such a product is unlikely to exist in the actual marketplace, and therefore should not be included in any quantification of economic loss for the at-issue products.<sup>131</sup>

85. Further, Mr. Boedeker's "demand" curves are not aligned with even his own description of demand curves in Figures 5 through 10 in the theoretical framework portion of his report. Demand curves are constructed with axes of price and volume (or quantity). However, Mr. Boedeker instead constructs his curves for price versus probability or preference shares, which are the outcome of conjoint analyses.<sup>132</sup> Preference shares explicitly do not "account for many real-world factors that shape market shares," ignore supply side reactions, and "assume that all relevant attributes that influence share have been measured."<sup>133</sup> Mr. Boedeker's preference share-based pseudo-demand curves match none of these requirements and, especially in combination with the unrealistic light bulb products underlying his probability shares cannot demonstrate "economic loss."

**D. The results of Mr. Boedeker's conjoint survey are illogical and render his analysis unreliable**

86. As I discussed in Section IV.D, Mr. Boedeker's conjoint survey design presents respondents with complex and contradictory choice tasks. The impact of Mr. Boedeker's flawed design are evident in the 10,000 part-worth draws (per respondent) that Mr. Boedeker uses to construct the confidence intervals for his economic loss calculations. In particular, 23% of respondents, all else equal, had a median preference suggesting that they prefer a 4+ year

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<sup>130</sup> "LED Analysis - 60W - WPC.nb;" "LED Analysis - 100W - WPC.nb"

<sup>131</sup> I note that there are many realistic products like these included in Mr. Boedeker's analysis, all which should not be included in any quantification of economic loss for the at-issue products.

<sup>132</sup> See Boedeker Deposition, p. 197.

<sup>133</sup> Orme (2006), at p. 92.

lifetime (the shortest lifetime in Mr. Boedeker's conjoint) to at least one longer lifetime. Overall, 49.4% of respondents showed a preference reversal where their median preference suggested that they preferred any shorter lifetime to any longer lifetime. These results are illogical and demonstrate the inherent flaws in Mr. Boedeker's conjoint survey that render his results unreliable. That is, either the class has a significant portion of consumers who prefer shorter lifetimes to longer lifetimes, or Mr. Boedeker's data are nonsensical.

**E. Mr. Boedeker's conjoint analysis does not account for the supply side dynamics and market equilibrium**

87. Mr. Boedeker spends a considerable amount of his report discussing basic microeconomic theory.<sup>134</sup> In particular he highlights the concepts of "willingness-to-accept" ("the minimum price at which each manufacturer is willing to sell the light bulb")<sup>135</sup> and acknowledges the importance of the market equilibrium (i.e., the balance between supply and demand in the marketplace).<sup>136</sup> However, in proposing a methodology for calculating the potential economic loss, he makes significant but fatally flawed assumptions regarding the supply-side of the LED light bulb marketplace in the "actual" and "but-for" worlds. Specifically, he states that:

"In the actual world, the light bulbs sold using the Longevity Claims constitute the relevant supply for the economic loss computation. If consumers' preferences change once they find out that the Longevity Claims are false, then the light bulbs sold using the Longevity Claims are also the supply in the but-for-world. Therefore, the shift in the attribute level (i.e., Longevity Claims are disclosed to be false at the point of purchase) has no impact on the marginal costs of the manufacturer, and therefore, the supply curve

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<sup>134</sup> See Boedeker Report, Section 2.

<sup>135</sup> See Boedeker Report, Section 2.1.2.

<sup>136</sup> See Boedeker Report, Section 2.1.3.

remains unchanged. Consequently, only the changes in the demand curve are relevant for the assessment of an economic loss to the consumers, if any.”<sup>137</sup>

88. Mr. Boedeker assumes, without evidence, that manufacturers would behave the same way if the longevity claim were removed from the light bulb. For example, the removal of the claim could result in a price adjustment on the part of manufacturers. Academic literature suggests that failure to consider supply-side dynamics results in price-premium measures that “cannot be measures of the market value of a product feature as they do not directly relate to what incremental profits a firm can earn on the basis of the product feature.”<sup>138</sup> As a result, Mr. Boedeker’s estimations likely “overstate the economic value of [the longevity claim] as they are only measures of shifts in demand and do not take into account the competitive response to the [longevity claim].”<sup>139</sup> The limitations of conjoint analysis in this respect are well-documented. It is understood that “[c]onjoint analysis predicts preference, not market share” due to various supply-side assumptions (e.g., assumes equal and proper distribution, and proper promotion).<sup>140</sup>

89. Despite his substantial discussion of market supply and demand and the resulting “market equilibrium,”<sup>141</sup> Mr. Boedeker does not determine what market equilibrium would be in the “actual” world or the “but-for” world he proposes. As a result, his potential economic loss

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<sup>137</sup> Boedeker Report, ¶ 42.

<sup>138</sup> Allenby, G.M., J. Brazell, J.R. Howell, and P.E. Rossi, “Economic Valuation of Product Features” (working paper), October 2013, available at [https://aede.osu.edu/sites/aede/files/imce/files/Seminars/Economic\\_Valuation\\_of\\_Product\\_Features\\_100813.pdf](https://aede.osu.edu/sites/aede/files/imce/files/Seminars/Economic_Valuation_of_Product_Features_100813.pdf), (“Allenby”), at p. 4.

<sup>139</sup> Allenby, at p. 43.

<sup>140</sup> Orme (2006), at pp. 23-24. Mr. Boedeker acknowledges that his methodology does not calculate “units sold in the market.” Boedeker Deposition, pp. 197.

<sup>141</sup> See Boedeker Report, Section 2.

calculations lack the proper context and do not take into account the various market factors

Mr. Boedeker highlights in the first half of his report.<sup>142</sup>

**VI. MR. BOEDEKER FAILED TO FOLLOW BASIC BEST PRACTICES FOR DESIGNING SURVEYS FOR LITIGATION, WHICH COULD HAVE ALLOWED HIM TO IDENTIFY THE MAJOR DESIGN FLAWS IN BOTH OF HIS STUDIES**

**A. Mr. Boedeker did not conduct a proper pretest of either of his studies**

90. Some of the major design flaws I described in Sections III and IV above in both Mr. Boedeker's "Pre-Test" and conjoint survey could have been avoided or alleviated. Mr. Boedeker could have taken the opportunity to learn about respondents' understanding and perception of the terms, attributes, and choices presented in both his surveys through a proper pretest, which is an important and standard procedure for designing surveys, especially in litigation.
91. Guidelines for survey design and administration emphasize the importance of conducting a pretest. A pretest, as defined by Dr. Shari Diamond in her *Reference Guide on Survey Research*, is the administration of the survey to a small sample of the target population in which "interviewers observe the respondents for any difficulties they may have with the questions and probe for the source of any such difficulties so that the questions can be rephrased if confusion or other difficulties arise."<sup>143</sup> Properly conducted pretests can inform the design of the ultimate survey instrument and help to identify potential flaws in the survey design.

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<sup>142</sup> See Boedeker Report, Section 2.

<sup>143</sup> Diamond, at p. 389.

92. Mr. Boedeker conducted an exploratory survey that he called a “Pre-Test,” which has nothing in common with a proper pretest except for the name. His “Pre-Test” survey did not allow him to observe difficulties respondents may have while taking the survey and did not provide feedback for his survey design. In fact, it is unclear whether Mr. Boedeker is aware of what a true pretest is, as he conflates it with a number of other types of studies, stating that “[t]he proper design of a survey requires [...] [c]onduct[ing] a pre-test/pilot or perform research to obtain information from a sample of consumers about their preferences and which product attributes they perceive as important.”<sup>144</sup> A pretest should be a trial run of the ultimate survey and methodology the researcher intends to use, where an interviewer can observe respondents and probe respondents about any difficulties. Mr. Boedeker’s “Pre-Test” survey, however, is based on a completely different methodology and therefore cannot be used to determine whether or not respondents found the language in his conjoint survey confusing, the choice tasks burdensome, or any other number of potential issues. In fact, given the confusing nature of Mr. Boedeker’s “Pre-Test,” which I discussed in Section III, Mr. Boedeker should have conducted a true pretest of that first study to properly evaluate consumer preferences. Further, if Mr. Boedeker had conducted a pretest of his conjoint survey, during which he administered his conjoint survey to a small sample of respondents and allowed them to raise any issues or concerns while taking the survey and probed for any issues, he may have avoided some of the fatal mistakes in his conjoint survey design.

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<sup>144</sup> Boedeker Report, ¶ 80.

**B. Mr. Boedeker did not follow other basic best practices for designing surveys for litigation**

93. In addition to failing to pretest his survey, Mr. Boedeker does not adhere to several other survey-design best practices. Most notably, both Mr. Boedeker's "Pre-Test" survey and his conjoint survey likely primed respondents to answer subsequent questions in a certain way. Priming is the mechanism by which exposure to certain stimuli, words, or phrases influences how respondents perceive or react to subsequent questions.<sup>145</sup> In Mr. Boedeker's "deflector" questions prior to the choice task, which he claimed to be "unrelated to this case,"<sup>146</sup> Mr. Boedeker asked "How much do you agree with the following statements," "I'm always looking for new ideas to improve my home," "I would buy eco-friendly products if they were less expensive," and "Technology is moving so fast, I don't even bother to try and keep up."<sup>147</sup> These statements likely primed respondents, making concepts such as eco-friendliness, improving the home, and technology more easily accessible to respondents when they entered the conjoint task. As a result, respondents likely put more emphasis on the lifetime attributes in their choice screens, as an LED light bulb's lifetime and cost savings over that lifetime are likely to be associated with the concepts of eco-friendliness, improving one's home, and technology.
94. In addition to priming respondents, Mr. Boedeker fails to use balanced, non-leading language in these "deflector" questions. Specifically, he emphasizes "agree" over "disagree" and

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<sup>145</sup> See Higgins, E.T., W.S. Rholes, and C.R. Jones, "Category Accessibility and Impression Formation," *Journal of Experimental Social Psychology*, Vol. 13, 1977, pp. 141-154, at p. 141. This study found that respondents exposed to either positive or negative trait terms prior to viewing a person, respondents' subsequent characterizations and evaluations of the person reflected the traits they were exposed to prior to viewing the person.

<sup>146</sup> Boedeker Report, ¶ 116.

<sup>147</sup> "LED Conjoint Survey.docx."

suggests to respondents that they *agree* with the provided statements.<sup>148</sup> A more balanced, non-leading approach would be to ask respondents, “How much do you agree or disagree with the following statements?”

95. These questions also likely suffer from yea-saying bias, which is the tendency of respondents to agree with whatever statement is put in front of them and has long been part of the survey research lexicon.<sup>149</sup> Survey researchers often convert one-sided questions to two-sided questions in order to balance the questions and minimize any such biases. This approach has been part of the mainstream for almost 70 years now. Payne (1951) wrote:

“Sometimes the questioner assumes that the negative side of the question is so obvious that it need not be stated. He may simply ask:

Do you think most manufacturing companies that lay off workers during slack periods could arrange things to avoid layoffs and give steady work right through the year?

63% said companies could avoid layoffs, 22% said they couldn't, and 15% had no opinion.

The alternative here seems to be so implicit in the question that it need not be stated. Either companies could avoid layoffs— or they couldn't. No other interpretation seems possible. But what happens when we take the trouble to state the alternative to another carefully matched cross section of respondents?

Do you think that most manufacturing companies that lay off workers during slack periods could avoid layoffs and provide steady work right through the year, or do you think layoffs are unavoidable?

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<sup>148</sup> “LED Conjoint Survey.docx.”

<sup>149</sup> Arndt, J. and E. Crane, “Response Bias, Yea-Saying, and the Double Negative,” *Journal of Marketing Research*, Vol. 12, No. 2, 1975, pp. 218-220.

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35% said companies could avoid layoffs, 41% said layoffs are unavoidable, and 24% expressed no choice.”<sup>150</sup>

96. When the question was balanced, the percentage of people who agreed with the proposition implicit in the question stem declined by 28 percentage points. As academic research has cautioned survey designers regarding the phenomenon of unbalanced questions, it is unclear why Mr. Boedeker’s survey has not adopted this basic concept.

## **VII. CONCLUSION**

97. My work on this assignment has led me to the following conclusions:

- 1) Mr. Boedeker’s exploratory “Pre-Test” survey is fraught with fundamental problems that yield invalid, irrelevant, and biased data.
- 2) Mr. Boedeker’s flawed and biased conjoint survey design cannot yield valid results.
- 3) Beyond the problematic design of his conjoint survey, Mr. Boedeker’s analyses of his conjoint data are not in line with academically accepted methodologies and are conceptually and technically flawed.
- 4) Mr. Boedeker failed to follow basic best practices for designing surveys for litigation.

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<sup>150</sup> Payne, at pp. 7-8.

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98. Given these severe errors, Mr. Boedeker cannot reliably “assess consumers’ changes in choices and preferences to quantify the economic loss to consumers.”<sup>151</sup>

A handwritten signature in black ink, reading "Joel Steckel", is written over a horizontal line.

Joel H. Steckel

March 22, 2019

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<sup>151</sup> Boedeker Report, ¶ 14.

**Exhibit 1**  
**Inconsistencies within Choice Screens of Mr. Boedeker's Conjoint Survey**

<b>Type of Inconsistency</b>	<b>Respondents (n = 1,000)</b> <b>Exposed to Inconsistencies</b>	
	<b>Number of Respondents</b>	<b>Percentage of Respondents</b>
Cheapest Bulb Cannot Be Superior to "Cheap Bulbs" <sup>[1]</sup>	509	50.9%
A Bulb with the Claim Does Not Last Six Times Longer <sup>[2]</sup>	744	74.4%
Multiple Bulbs with the Claim Have Different Lifetimes and Cannot All Last "Six Times Longer" <sup>[3]</sup>	1,000	100.0%
<b>Respondents Exposed to At Least One Inconsistency</b>	<b>1,000</b>	<b>100.0%</b>

<b>Type of Inconsistency</b>	<b>Choice Screens (n = 12,000)</b> <b>Containing Inconsistencies</b>	
	<b>Number of Choice Screens</b>	<b>Percentage of Choice Screens</b>
Cheapest Bulb Cannot Be Superior to "Cheap Bulbs" <sup>[1]</sup>	750	6.3%
A Bulb with the Claim Does Not Last Six Times Longer <sup>[2]</sup>	1,222	10.2%
Multiple Bulbs with the Claim Have Different Lifetimes and Cannot All Last "Six Times Longer" <sup>[3]</sup>	8,447	70.4%
<b>Choice Screens Containing One Inconsistency<sup>[4]</sup></b>	<b>10,419</b>	<b>86.8%</b>

**Notes:**

- [1] The cheapest bulb is the only one with the claim "will last six times longer than cheap LED light bulbs" — even though it is already the cheapest LED light bulb shown. This inconsistency occurs when exactly one of the five bulbs carries the comparative lifetime claim and is the lowest-priced bulb.
- [2] Relative to the cheapest bulb in the choice set, a bulb with the claim "will last six times longer than cheap LED light bulbs" does not actually last six times longer based on the number of years stated in the lifetime attribute. This inconsistency can occur when exactly one of the five bulbs carries the comparative lifetime claim and is not the lowest-priced bulb.
- [3] If the comparative lifetime claim appears two or more times among the five products shown and the lifetimes of these options are not the same, then the choice set contains inconsistencies.
- [4] Only one of the three types of inconsistencies described is possible within any choice screen.
- [5] This table is not exhaustive of all of the inconsistencies in Mr. Boedeker's choice screens. Only three especially prominent inconsistencies are shown.

**Sources:**

- [1] LEDdesign010819.csv.  
 [2] CBC60Watt011519.csv.  
 [3] CBC100Watt011519.csv.

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**APPENDIX A**  
**CURRICULUM VITAE**

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**EDUCATION**

UNIVERSITY OF PENNSYLVANIA, THE WHARTON SCHOOL

Doctor of Philosophy Degree (Marketing/Statistics) awarded, May 1982.  
Dissertation Title: "A Game Theoretic and Experimental Approach to the Group Choice Phenomenon in Organizational Buying Behavior;" Professor Yoram Wind, advisor.

Master of Arts Degree (Statistics) awarded May 1980.

Master of Business Administration Degree (Management Science) awarded with Distinction, May 1979.

Elected to Beta Gamma Sigma, May 1979.

COLUMBIA UNIVERSITY

Bachelor of Arts (Mathematics) awarded Summa Cum Laude, May 1977.

Elected to Phi Beta Kappa, May 1977.

**ACADEMIC POSITIONS**

Vice Dean for Doctoral Education, Stern School of Business, New York University, August 2012-Present.

Accounting Department, Acting Chairperson, Stern School of Business, August 2016 – Present.

Director PhD Programs, Stern School of Business, New York University, May 2007-July 2012.

Marketing Department Chairperson, Stern School of Business, New York University, July 1998-June 2004.

Professor and Associate Professor, Stern School of Business, New York University, January 1989 - present. Taught courses in Business Strategy, Marketing Management, Marketing Research, Corporate Reputation and Branding, Models of Pricing and Promotion, Field Studies in the New Economy, Marketing Engineering, and Analytic Marketing for Management Consulting. Also taught Doctoral Seminars in Mathematical Models in Marketing and Research Methods.

Visiting Professor, Wharton School, University of Pennsylvania, January 1995 - December 1995. Taught Core Marketing course.

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Visiting Professor, Escola de Pós-Graduação em Ciências Económicas e Empresariais, Universidade Católica Portuguesa, May - June 1992, May - June 1993. Taught Industrial Marketing and Marketing Strategy.

Associate Professor and Assistant Professor, Graduate School of Business, Columbia University, July 1981 - December 1988. Taught MBA-level courses in Industrial Marketing, Marketing Planning, and Marketing Research. Taught three Ph.D.-level Marketing Seminars and Applied Multivariate Statistics.

Visiting Associate Professor, School of Organization and Management, Yale University, September - December 1988. Taught graduate course in Marketing Strategy.

Visiting Assistant and Associate Professor, Graduate School of Management, University of California at Los Angeles, July 1984 - June 1985, January - March 1987. Taught Advanced Marketing Management, Marketing Research, and Strategic Marketing Planning.

Assistant Instructor, Department of Statistics, University of Pennsylvania, July 1979 - June 1980. Assisted in undergraduate and MBA-level courses in Statistics. Taught undergraduate course in Calculus.

Teaching Assistant, Department of Mathematics, Columbia University, September 1976 - May 1977. Assisted in courses in Number Theory and Differential Equations.

## **PROFESSIONAL INTERESTS**

Marketing Strategy and Marketing Research. In particular, marketing research methodology, marketing and branding strategies, electronic commerce, approaches for one-to-one marketing, and managerial decision making.

## **PUBLICATIONS**

### **Books**

Shift Ahead: How the Best Companies Stay Relevant in a Changing World (with A. Adamson), New York: AMACOM, 2018.

Marketing Research (with D. Lehmann and S. Gupta), Boston: Addison-Wesley Longman, 1998.

Analysis for Strategic Marketing (with V. Rao), Boston: Addison-Wesley Longman, 1998.

The New Science of Marketing: State of the Art Tools for Anticipating and Tracking the Market Forces that will Shape Your Company's Future (with V. Rao), Chicago: Irwin Professional Publishers, 1995.

**Journal Articles**

“Testing for Trademark Dilution in the Court and Lab,” (with B. Beebe, R. Germano, and C. Sprigman, University of Chicago Law Review, Vol 86, 2019 (Forthcoming).

“The Future of Marketing Letters,” (with P. Golder and S. Jap), Marketing Letters, Vol. 29, No. 3, September, 2017, 1-5.

“Behavioral Reasons for New Product Failure: Does Overconfidence Induce Over-forecasts?” (with D. Markovitch, A/ Michaut-Denizeau, D. Philip, and W. M. Tracy), Journal of Product Innovation Management, Vol. 32, No. 5, September 2015.

“Modeling Credit Card Share of Wallet: Solving the Incomplete Information Problem,” (with Y. Chen), Journal of Marketing Research, Vol. 49, No. 5, October 2012.

“The Role of Consumer Surveys in Trademark Infringement: Evidence From the Federal Courts,” (with R. Bird), University of Pennsylvania Journal of Business Law, Vol. 14, Issue 4, Summer 2012, 1013-1054.

“Do Initial Stock Price Reactions Provide a Good Measurement Stick for Marketing Strategies? The Case of Major New Product Introductions in the US” (with D. Markovich), European Journal of Marketing, Vol. 46, Iss. 3, 2012, 406-421.

"When Do Purchase Intentions Predict Sales?" (with V. Morwitz and A. Gupta), International Journal of Forecasting, Vol. 23, November 2007, 347-64.

“Dilution through the Looking Glass: A Marketing View of the Trademark Dilution Revision Act of 2005,” (with R. Klein and S. Schussheim), The Trademark Reporter, Vol. 96, No. 3, May-June 2006.

“Choice in Interactive Environments,” (with R. Winer, R. Bucklin, B. Dellaert, X. Drèze, G. Häubl, S. Jap, J.D.C. Little, T. Meyvis, A. Montgomery, and A. Rangaswamy), Marketing Letters, Vol. 16, No.3/4, 2005.

“Using Capital Markets as Market Intelligence: Evidence from the Pharmaceutical Industry,” (with D. Markovich and B. Yeung), Management Science, October 2005.

“Marketing Science – Growth and Evolution,” (with J. Hauser, G. Allenby, F.H. Murphy, J.S. Raju, and R. Staelin), Marketing Science, Vol. 24, No. 1, Winter 2005.

“Supply Chain Decision Making: Will Shorter Cycle Times and Shared Point of Sale Information Necessarily Help?,” (with S. Gupta and A. Banerji), Management Science, Vol. 50, No. 4, April 2004.

“Choice and the Internet: From Clickstream to Research Stream,” (with R. Bucklin, J. Lattin, A. Ansari, S. Gupta, D. Bell, E. Coupey, J.D.C. Little, C. Mela, and A. Montgomery), Marketing Letters, Vol. 13, No. 3, Summer 2002.

“A Multiple Ideal Point Model: Capturing Multiple Preference Effects from within an Ideal Point Framework,” (with J. Lee and K. Sudhir), Journal of Marketing Research, Vol. 39, No. 1, February 2002.

*Confidential*

“2001: A Marketing Odyssey,” (with E. Brody), Vol. 20, No. 4, Marketing Science, Fall 2001.

"Consumer Strategies for Purchasing Assortments within a Single Product Class," (with Jack K.H. Lee), Journal of Retailing, Vol. 75, No. 3, Fall 1999.

“The Max-Min-Min Principle of Product Differentiation,” (with A. Ansari and N. Economides), Journal of Regional Science, May 1998.

“Dynamic Influences on Individual Choice Behavior,” (with R. Meyer, T. Erdem, F. Feinberg, I. Gilboa, W. Hutchinson, A. Krishna, S. Lippman, C. Mela, A. Pazgal, and D. Prelic), Marketing Letters, Vol. 8, No. 3, July 1997.

“Addendum to ‘Cross Validating Regression Models in Marketing Research’,” (with W. Vanhonacker), Marketing Science, Vol. 15, No. 1, 1996.

“Selecting, Evaluating, and Updating Prospects in Direct Mail Marketing,” (with V. Rao), Journal of Direct Marketing, Vol. 9, No. 2, Spring 1995.

“A Cross-Cultural Analysis of Price Responses to Environmental Changes,” (with V. Rao), Marketing Letters, Vol. 6, No. 1, January 1995.

“Cross Validating Regression Models in Marketing Research,” (with W. Vanhonacker), Marketing Science, Vol. 12, No. 4, Fall 1993.

“Preference Aggregation and Repeat Buying in Households,” (with S. Gupta), Marketing Letters, Vol. 4, No. 4, October 1993.

“Roles in the NBA: There's Still Always Room for a Big Man, But His Role Has Changed” (with A. Ghosh), Interfaces, Vol. 23, No. 4, July-August 1993.

“Introduction to ‘Contributions of Panel and Point of Sale Data to Retailing Theory and Practice’,” Journal of Retailing, Vol. 68, No.3, Fall 1992.

“Explanations for Successful and Unsuccessful Marketing Decisions: The Decision Maker’s Perspective” (with M.T. Curren and V.S. Folkes), Journal of Marketing, Vol. 56, No. 2, April 1992.

“Locally Rational Decision Making: The Distracting Effect of Information on Managerial Performance” (with R. Glazer and R. Winer), Management Science, Vol. 38, No. 2, February 1992.

“Prospects and Problems in Modeling Group Decisions” (with K.P. Corfman, D.J. Curry, S. Gupta, and J. Shanteau), Marketing Letters, Vol. 2, No. 3, July 1991.

“A Stochastic Multidimensional Scaling Methodology for the Empirical Determination of Convex Indifference Curves in Consumer Preference/Choice Analysis” (with W.S. DeSarbo and K. Jedidi), Psychometrika, Vol. 56, No. 2, June 1991.

“A Polarization Model for Describing Group Preferences” (with V. Rao), Journal of Consumer Research, Vol. 18, No. 1, June 1991.

*Confidential*

“On the Creation of Acceptable Conjoint Analysis Experimental Designs,” (with W.S. DeSarbo and V. Mahajan), Decision Sciences, Vol. 22, No. 2, Spring 1991.

“Longitudinal Patterns of Group Decisions: An Exploratory Analysis” (with K.P. Corfman and D.R. Lehmann), Multivariate Behavioral Research, Vol. 25, No. 3, July 1990.

“Investing in the Stock Market: Statistical Pooling of Individual Preference Judgments,” (with N. Capon), Annals of Operations Research, Vol. 23, 1990.

“Judgmental Forecasts of Key Marketing Variables: Rational vs. Adaptive Expectations” (with R. Glazer and R. Winer), International Journal of Forecasting, Vol. 6, No. 3, July 1990.

“Committee Decision Making in Organizations: An Experimental Test of the Core,” Decision Sciences, Vol. 21, No. 1, Winter 1990.

“Towards a New Way to Measure Power: Applying Conjoint Analysis to Group Purchase Decisions” (with J. O’Shaughnessy), Marketing Letters, Vol. 1, No. 1, December 1989.

“The Formation and Use of Key Marketing Variable Expectations and their Impact on Firm Performance: Some Experimental Evidence” (with R. Glazer and R. Winer), Marketing Science, Vol. 8, No. 1, Winter 1989.

“A Heterogeneous Conditional Logit Model of Choice” (with W. Vanhonacker), Journal of Business and Economic Statistics, Vol. 6, No. 3, July 1988.

“Estimating Probabilistic Choice Models from Sparse Data: A Method and an Application to Groups” (with D.R. Lehmann and K. Corfman), Psychological Bulletin, Vol. 95, No. 1, January 1988.

“A Friction Model for Describing and Forecasting Price Changes” (with W.S. DeSarbo, V.R. Rao, Y.J. Wind and R. Colombo), Marketing Science, Vol. 6, No. 4, Fall 1987.

“Group Process and Decision Performance in a Simulated Marketing Environment” (with R. Glazer and R. Winer), Journal of Business Research, Vol. 15, No. 6, December 1987.

“Effective Advertising in Industrial Supplier Directories” (with D.R. Lehmann), Industrial Marketing Management, Vol. 15, No. 2, April 1985.

### **Book Chapters**

“The Inevitable Decline of American Political Discourse,” in Review of Marketing Research, Vol. 17, D. Iacobucci (ed.), Emerald Publishing, 2019.

“Dynamic Decision Making in Marketing Channels”, with S. Gupta, and A. Banerji, in Experimental Business Research, A. Rapoport and R. Zwick (eds.), Boston, MA: Kluwer Academic Publishers, 2002.

*Confidential***Refereed Proceedings**

“PIONEER: Decision Support for Industrial Product Planning” in Efficiency and Effectiveness in Marketing, Proceedings of the American Marketing Association Educator's Conference, Vol. 54, 1988, G.L. Frazier and C.A. Ingene, eds., Chicago.

“Mathematical Approaches to the Study of Power: A Critical Review” in Advances in Consumer Research, Vol. XII, 1985, E. Hirschman and M. Holbrook, eds., Provo, UT.

“On Obtaining Measures from Ranks” in An Assessment of Marketing Thought and Practice, Proceedings of the American Marketing Association Educator's Conference, Vol. 48, B.J. Walker, ed., 1982, Chicago.

**Other**

“How Smart Marketers Gauge the Future to Shift Ahead of Consumer Needs” (with A. Adamson), American Management Association Playbook, December 18, 2017, <http://playbook.amanet.org/training-articles-marketers-shift-ahead-consumer-needs/>

“Paul Green: The Hulk Hogan of Marketing,” essay in the Legends of Marketing Series.

“Jerry Wind A Man Ahead of His Time,” essay in the Legends of Marketing Series.

“Forecasting Online Shopping,” Stern Business, Fall/Winter 2000, pp. 22-27.

“Method to Their Madness,” The Industry Standard, August 7, 2000.

Book review of The Application of Regression Analysis by D.R. Wittink, Journal of Marketing Research, Vol. 26, No. 4, November 1989.

Co-author (with many others) of The Statistics Problem Solver, Research and Education Association, New York, 1978.

**CONFERENCE PRESENTATIONS**

“Testing for Trademark Dilution in the Court and Lab,” (with B. Beebe, R. Germano, and C. Sprigman), Munich Summer Institute, June 2018.

“Trademark Dilution: Searching for the Elusive Unicorn,” Conference on Empirical Legal Studies, Cornell University, October 2017.

“Measuring Trademark Dilution”, Conference on Empirical Analysis of Intellectual Property, NYU Law School, October 2014.

“Using Surveys in Intellectual Property Cases: What’s the Damage,” AIPLA Spring Meeting, May 2013, Seattle WA.

“Trademark Dilution: An Elusive Concept in the Law,” Conference on Brands and Branding in Law, Accounting, and Marketing Kanan Flagler School, University of North Carolina, April 2012

*Confidential*

"The Role of Consumer Surveys in Trademark Infringement Cases: Evidence from the Federal Courts," (with R. Bird), AMA Summer Educator's Conference, August 2010, Boston.

"Global Market Share Dynamics: Winners and Losers in a Tumultuous World," (with P. Golder and S. Chang), INFORMS Marketing Science Conference, June 2010, Cologne, Germany.

"Use and Abuse of Consumer Perception Research in Antitrust and Advertising Cases," ABA Antitrust Section Spring Meeting, March 2009, Washington, DC.

"New Product Development: The Stock Market as Crystal Ball," (with D. Markovich), INFORMS Marketing Science Conference, Atlanta, GA., June 2005.

"Modeling Credit Card Usage Behavior: Where is my VISA and Should I Use It?," (with Y. Chen), INFORMS Marketing Science Conference, College Park, Md., June 2003.

"Using Capital Markets as Market Intelligence: Evidence from the Pharmaceutical Industry," (with D. Markovich and B. Yeung), INFORMS Marketing Science Conference, College Park, Md., June 2003.

"Using Capital Markets as Market Intelligence: Evidence from the Pharmaceutical Industry," (with D. Markovich and B. Yeung), Share Price Accuracy and Transition Economies Conference, U. of Mich. Law School, Ann Arbor, Mi., May 2003.

"Modeling Internet Site Visit Behavior," (with E. Bradlow and O. Sak), Joint Statistical Meetings, Indianapolis, August 2000.

"Consumer Strategies for Purchasing Assortments within a Single Product Class," (with Jack K.H. Lee), INFORMS Fall Conference, Philadelphia, November 1999.

"When Do Purchase Intentions Predict Sales?" (with V. Morwitz and A. Gupta), AMA Advanced Research Techniques Forum, Santa Fe, NM, June 1999.

"Modeling New Product Preannouncements as a Signaling Game," (with H. Jung), University of Mainz Conference on Competition in Marketing, Germany, June 1999.

"A Multiple Idea Point Model: Capturing Multiple Preference Effects from within an Ideal Point Framework," (with J. Lee), Joint Statistical Meetings, Dallas, TX, Aug. 1998.

"Modeling New Product Preannouncements as a Signaling Game," (with H. Jung), INFORMS Marketing Science Conference, Fontainebleau, France, July 1998.

"Dynamic Decision-Making in Marketing Channels: Traditional Systems, Quick Response, and POS Information," (with S. Gupta and A. Banerji), NYU Conference on Managerial Cognition, May 1998.

"When Do Purchase Intentions Predict Sales?" (with V. Morwitz and A. Gupta), INFORMS International Meetings, Barcelona, July 1997.

"Mental Models in Competitive Decision Making: A Blessing and A Curse," Conference on Competitive Decision Making, Charleston, SC, June 1997.

*Confidential*

“When Do Purchase Intentions Predict Sales?” (with V. Morwitz and A. Gupta), INFORMS Marketing Science Conference, Berkeley, March 1997.

“Model Adequacy versus Model Comparison: Is the ‘Best’ Model Any ‘Good’?”, ” (with A. Ansari and P. Manchanda), INFORMS Marketing Science Conference, Berkeley, March 1997.

“Dynamic Decision-Making in Marketing Channels: Traditional Systems, Quick Response, and POS Information,” (with S. Gupta and A. Banerji), First Conference in Retailing and Service Sciences, Banff, 1994.

“Dynamic Decision-Making in Marketing Channels: Traditional Systems, Quick Response, and POS Information,” (with S. Gupta and A. Banerji), Behavioral Decision Research in Management Conference, Boston, 1994.

“Modeling Consideration Set Formation: The Role of Uncertainty,” (with B. Buchanan and S. Sen), TIMS Marketing Science Conference, Tucson, 1994.

“A Cross-Cultural Analysis of Price Conjectures to Environmental Changes,” (with V. Rao), TIMS Marketing Science Conference, St. Louis, 1993.

“Decision-Making in a Dynamic Distribution Channel Environment,” (with S. Gupta and A. Banerji), TIMS Marketing Science Conference, St. Louis, 1993.

“Cross Validating Regression Models in Marketing Research,” (with W. Vanhonacker), TIMS Marketing Science Conference, London, 1992.

“The Influence of Stock Price on Marketing Strategy,” (with D. Gautschi and D. Sabavala), TIMS Marketing Science Conference, Wilmington, DE, 1991.

“A Polarization Model for Describing Group Preferences” (with V. Rao), ORSA/TIMS National Fall Meetings, Philadelphia, 1990.

“A Polarization Model for Describing Group Preference,” (with V. Rao), Behavioral Decision Research in Management Conference, Philadelphia, 1990.

“Conflict Resolution and Repeat Buying” (with S. Gupta), TIMS Marketing Science Conference, Champaign, Ill., 1990.

“Variety Seeking at the Group Level” (with S. Gupta), Association for Consumer Research Fall Meetings, New Orleans, 1989.

“On Using Attraction Models to Allocate Resources in a Competitive Environment,” TIMS Marketing Science Conference, Durham, NC, 1989.

“Multidimensional Scaling with Convex Preferences” (with W.S. DeSarbo), ORSA/TIMS National Fall Meetings, St. Louis, 1987.

“A Social Comparison Model for Describing Group Preference Evaluations” (with V. Rao), TIMS Marketing Science Conference, Jouy-en-Josas, France, 1987.

*Confidential*

“The Day the Earth Stood Still,” Association for Consumer Research Fall Meetings, Toronto, 1986.

“A Friction Model for Describing and Forecasting Price Movements” (with W. DeSarbo, V. Rao, Y. Wind, and R. Colombo), ORSA/TIMS National Fall Meetings, Miami Beach, 1986.

“An Eigenvalue Method for Measuring Consumer Preferences” (with E. Greenleaf and R. Stinerock), TIMS Marketing Science Conference, Dallas, 1986.

“Creating Conjoint Analysis Experimental Designs without Infeasible Stimuli” (with W. DeSarbo and V. Mahajan), TIMS Marketing Science Conference, Dallas, 1986.

“The Mediating Role of Information in Marketing Managers' Decisions” (with R. Glazer and R. Winer), TIMS Marketing Science Conference, Dallas, 1986.

“Incorporating Interdependencies of Utility Functions into Models of Bargaining” (with S. Gupta), ORSA/TIMS National Fall Meetings, Atlanta, 1985.

“The Formation of Key Marketing Variable Expectations” (with R. Glazer and R. Winer), ORSA/TIMS National Fall Meetings, Atlanta, 1985.

“Does the Nash Equilibrium Really Describe Competitive Behavior?: The Case of Cigarette Advertising,” TIMS Marketing Science Conference, Nashville, 1985.

“A Heterogeneous Conditional Logit Model of Choice” (with W. Vanhonacker), ORSA/TIMS National Fall Meetings, Dallas, 1984.

“Using a ‘Robust’ Response Function to Allocate Resources in a Competitive Environment,” TIMS Marketing Science Conference, Chicago, 1984.

“Longitudinal Models of Group Choice Behavior,” (with D. Lehmann and K. Corfman), ORSA/TIMS National Fall Meetings, Orlando, 1983.

“Considerations of Optimal Design of New Task Industrial Products,” ORSA/TIMS National Fall Meetings, San Diego, 1982.

“Game Theoretic Choice Models in Organizational Buying Behavior,” TIMS Special Interest Conference in Marketing Measurement and Analysis, Philadelphia, 1982.

### **OTHER RESEARCH IN PROGRESS**

Trademark Dilution: In Search of the Unicorn (with B. Beebe, R. Germano, and C. Sprigman)

Measuring Likelihood of Confusion (with B. Beebe, R. Germano, and C. Sprigman)

Marketing Research in the Courtroom vs. the Boardroom: What are the Differences and Do They Matter? (with R. Bird)

The Impact of Trademark Litigation Outcomes on Brand Equity and Marketing Decision Making (with R. Bird)

*Confidential*

Modeling the Tradeoffs between Marketing Research and Flexible Manufacturing.

### **INVITED SEMINARS**

Columbia University	Spring 1991, Summer 1994
Cornell University	Fall 1983, Spring 1989
Georgetown University	Fall 2006
Pennsylvania State University	Fall 1996, Fall 2006
Rutgers University	Spring 1994
Temple University	Fall 1995
University of California, Berkeley	Spring 1990
University of California, Los Angeles	Spring 1985, Spring 1996
University of California, San Diego	Fall 2003
University of Florida	Spring 1992
University of Mainz, Germany	Summer 1998
University of Michigan	Spring 1993
University of Pennsylvania	Spring 1992, Spring 1995, Spring 1998
University of Southern California	Spring 1987
Washington University, St. Louis	Spring 2003

### **EDITORIAL SERVICE**

#### **Editorships**

Co-Editor, *Marketing Letters*, July 2010 – March 2017

Guest editor, special section of Marketing Science on the history of marketing science theory and practice, 2001.

Consulting editor in marketing, Addison-Wesley Longman Academic Publishers, Boston, MA, 1993-1999.

Guest editor, special issue of Journal of Retailing on the use of panel and point of sale data, 1992.

#### **Other**

Member of Editorial Board (current), Journal of Retailing.

Have served on editorial board or as ad-hoc referee for Journal of Marketing, Journal of Marketing Research, Management Science, Marketing Science, Journal of Consumer Research, Journal of Retailing and Consumer Services, Manufacturing and Service Operations Management, Decision Sciences, Journal of Business and Economic Statistics, Journal of Econometrics, Strategic Information Systems, Review of Marketing Science, Corporate Reputation Review, and Journal of Business Research.

*Confidential***SERVICE****Dissertation Committees Chaired**

Joseph Pancras (co-chair)	(Marketing - New York University)
Sergio Meza (co-chair)	(Marketing – New York University)
Dmitri Markovich	(Marketing – New York University)
Heonsoo Jung	(Marketing - New York University)
Jack Lee	(Marketing - New York University)
Asim Ansari (co-chair)	(Marketing - New York University)
Shahana Sen (co-chair)	(Marketing - New York University)

**Dissertation Committees Served on**

Tingting Fan (Marketing – New York University)  
 Kei-Wei Huang (Information Systems – New York University)  
 Sherrif Nassir (Marketing – New York University)  
 Jane Gu (Marketing – New York University)  
 Orkun Sak (Marketing – University of Pennsylvania)  
 Atanu Sinha (Marketing - New York University)  
 Louis Choi (Marketing - Columbia University)  
 Sunder Narayanan (Marketing - Columbia University)  
 Carol Rhodes (Ed. Psych. - Columbia University)  
 Rita Wheat (Marketing - Columbia University)  
 Robert Stinerock (Marketing - Columbia University)  
 Bruce Buchanan (Business Economics - Columbia University)  
 Chen Young Chang (Marketing - University of Pennsylvania)

**Other Discipline Related Service**

Chairperson, Marketing Committee, INFORMS, January 2006 – June 2010.  
 Past President, INFORMS Society on Marketing Science, January 2004 – December 2005.  
 Founding President, INFORMS Society on Marketing Science, January 2003 – December 2003.  
 President, INFORMS College on Marketing, January 2002 – December 2002.  
 President Elect, INFORMS College on Marketing, January 2000- December 2001.  
 Secretary-Treasurer, INFORMS College on Marketing, January 1998-December 1999.  
 Association of Consumer Research, Annual Program Committee, 1999.  
 Co-Organizer of 1996 Conference on Consumer Choice and Decision Making, Arden House, Harriman, New York, June 1996.  
 Organized Marketing Sessions at Fall 1989 TIMS/ORSA Joint National Meetings, New York, October 1989.

**Other University Related Service**

Member, Research Resources Committee, Stern School of Business, September 2009 – Present.

*Confidential*

Chair, Statistical and Quantitative Reasoning Task Force, Stern School of Business, September 2005 – August 2007.

Member, Specialization Committee, Stern School of Business, September 2004 - Present.

Member, PhD Oversight Committee, Stern School of Business, January 2006 – May 2007.

Member, Executive Committee, Digital Economy Initiative, Stern School of Business, January 2000 – August 2002.

Member, Board of Directors, Center for Information Intensive Organizations, Stern School of Business, September 1998 – December 1999.

Member of MBA Committee, Stern School of Business, New York University, 1989-December 1998. Committee was responsible for supervising redesign of MBA programs in 1991 and 1995, Chairman September 1997-August 1998.

Member of Stern MBA Curriculum Review Committee, September 1997-December 1998. Committee redesigned MBA Core.

Member of Stern School Committee on Improving Consulting Activities, July 1998-December 1998.

Member of Building Committee, Stern School of Business, New York University, 1990-1992.

Member of Research Committee, Stern School of Business, New York University, 1990-1991.

Elected member of Columbia University Senate. Served on Budget Review and Alumni Relations Committees, 1986-1988.

## **AWARDS**

Awarded the J. Parker Bursk Memorial Prize as the outstanding student participating in the Department of Statistics, University of Pennsylvania, 1979.

Dissertation was awarded Honorable Mention in the 1982 American Marketing Association Dissertation Competition.

Dissertation was named Winner of the 1983 Academy of Marketing Science Dissertation Competition.

Invited speaker at the J. Parker Bursk Memorial Prize Luncheon, Department of Statistics, University of Pennsylvania, 1992.

Invited speaker at American Marketing Association Doctoral Consortium, University of Southern California, 1999.

Cited for outstanding editorial support, Fordham University Pricing Center, Sept. 2002.

*Confidential*

Named one of the inaugural winners of the Best Reviewer Award for the *Journal of Retailing*, 2003.

Work recognized by West publishing as one of the outstanding 2012 law review articles on Intellectual Property.

Work recognized with the Highly Commended Paper Award at the Literati Network Awards for Excellence 2013.

#### **SELECTED CONSULTING AND OTHER PROFESSIONAL ACTIVITIES**

AOL MovieFone, Inc., New York, NY. Performed general consulting on analyzing caller data for telephone movie information service; Consulted as expert in conjunction with damage assessment in legal proceedings.

Citicorp, New York, NY. Built choice model for bank services. Gave lectures on Marketing Strategy to CitiCards executives.

Directions for Decisions, Inc., New York, NY and Jersey City, NJ. Consulted on segmentation study of sports apparel market, designed and implemented "Construction Test", a concept design decision tool. Performed general consulting on marketing research practice on an ongoing basis.

eComplaints.com, New York, NY. Member board of advisors.

Federal Trade Commission, Washington, D.C. Served as consultant on branding strategies in antitrust investigation.

J.C. Penney Co., New York, NY. Performed sales-advertising response analysis. Work was done on request for Management Decision Systems, Inc., Weston, MA.

The Open Center, New York, NY. Consulted on marketing strategy and direct marketing practices.

Pfizer Pharmaceuticals, New York, NY. Conducted seminar on conjoint analysis.

SilverBills, Inc., New York, NY. Member board of advisors.

Union Carbide Corporation, Danbury CT, Built econometric model to forecast prices .

Various Expert Witness Engagements. Clients include AOL Moviefone, AT&T, Avon, Brother International, Dyson, Epson, Hershey's, BM, JP Morgan Chase, Gerber Products, Johnson & Johnson, K-Swiss, Mead Johnson, Microsoft, Monster Cable, McDonald's, New Balance, Playtex, PNC Financial, Proctor & Gamble, Roche, Seagate, Sergio Garcia, Sharp, TiVo, Under Armour, Wal-Mart, Warnaco, and various plaintiffs in consumer class actions.

*Confidential*

**MEMBERSHIPS**

American Marketing Association

American Statistical Association

Association for Consumer Research

The Institute for Operations Research and Management Science (INFORMS)

Society for Consumer Psychology

American Association for Public Opinion Research

*Confidential*

**APPENDIX B**  
**TESTIMONY IN THE LAST FOUR YEARS**

### **Testimony in the Last Four Years**

#### **Depositions**

People of the State of California vs. Overstock.com, Inc., Case No. RG10-546833. Superior Court of California, (County of Alameda).

Denimafia, Inc. v. New Balance Athletic Shoe, Inc., Foot Locker, Inc., The Sports Authority, Inc., and Famous Horse, Inc., d/b/a V.I.M., Civil Action No. 12-cv-04112 (AJP), United States District Court (Southern District of New York).

Moroccanoil, Inc. v. Marc Anthony Cosmetics, Inc., Case No. CV 13-02747 DMG (ARGx), United States District Court (Central District of California, Western Division).

QS Wholesale, Inc. and Quiksilver, Inc. v. Rox Volleyball, Inc. and 1<sup>st</sup> Place Team Sales, Inc., Case No. SACV 13-00512 AG (JPRx), United States District Court (Central District of California, Southern Division).

Church & Dwight Co., Inc. v. SPD Swiss Precision Diagnostics GmbH, Civil Action No.: 14-CV-585 (AJN), United States District Court (Southern District of New York)

Twentieth Century Fox, et al. v. Empire Distribution, Inc. Case No: 2:15-cv-02158-PA-FFM (United States District Court for the Central District of California).

United States of America, ex rel., Floyd Landis vs. Tailwind Sports Corporation et. al., Case No. No. 1:10-cv-00976 (CRC); United States District Court (District of Columbia)

Art Cohen, Individually and on Behalf of All Others Similarly Situated, v. Donald J. Trump, Case No. 13-CV-2519-GPC(WVG), United States District Court (Southern District of California)

Kenneth Hobbs on behalf of himself and all others similarly situated, v. Brother International and Does 1 through 10 inclusive, Case No. 2:15-cv-01866-PSG (MRWx), United States District Court, (Central District of California)

Mizner Court Holdings, LLC, and San Marco Holdings, LLC, v. Country Club Maintenance Association, Inc., d/b/a Broken Sound Master Association, Case No. 15-CA-000864 (AB), Circuit Court of the 15<sup>th</sup> Judicial Circuit in and for Palm Beach County.

Wasser, Joshua, Ila Gold, and Roberto Israel Barajas-Ramos, on behalf of themselves and all others similarly situated, vs. All Market Inc., Case No.: 16-cv-21238- Scola/Otazo-Reyes, United States District Court (Southern District of Florida, Miami Division).

Car-Freshener Corporation and Julius Samann Ltd. vs. American Covers, LLC F/K/A American Covers, Inc. D/B/A Handstands, Energizer Holdings, Inc., and Energizer Brands, LLC, Civil Action No.: 5:17-cv-171 (TJM/ATB), United States District Court (Northern District of New York).

*Confidential*

Spangler Candy Company vs. Tootsie Roll Industries, LLC, Case No. 3:18-cv-1146, United States District Court (Northern District of Ohio, Western Division - Toledo).

Merck & Co., Inc. and Merck Sharp & Dohme Corp., v. Merck KGaA, Case No. 2:16-cv-00266-ES-MAH, United States District Court (District of New Jersey).

### **Trial**

People of the State of California vs. Overstock.com, Inc., Case No. RG10-546833. Superior Court of California, (County of Alameda).

Church & Dwight Co., Inc. v. SPD Swiss Precision Diagnostics GmbH, Civil Action No.: 14-CV-585 (AJN), United States District Court (Southern District of New York).

Dayna Craft (withdrawn), Deborah Larsen, Wendi Alper-Pressman, Individually and On Behalf of All Others Similarly Situated v. Philip Morris Companies, Inc., a corporation, and Philip Morris Incorporated, a corporation, Case No. 2202-00406-02 , Division No. 6 (Missouri Circuit Court, Twenty-Second Judicial Circuit, City of St. Louis)

### **Hearing**

In the Matter of Distribution of the 2010, 2011, 2012, 2013 Cable Royalty Funds, (Before the Copyright Royalty Judges, Washington D.C.) Docket No. 14-CRB-0010-CD (2010-13)

### **Daubert Hearing**

Visteon Technologies, LLC. v. Garmin International, Inc., Civil Action No. 2:10-cv-10578-PDB-MAR (United States District Court, Eastern District of Michigan – Southern Division)

### **Preliminary Injunction Hearing**

Danone US, LLC. v. Chobani, LLC., Case Action No. 18 CV 11702 (United States District Court, Southern District of New York)

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**APPENDIX C**  
**MATERIALS RELIED UPON**

**Case Documents**

Amended Class Action Complaint, *Jeff Young, individually and on behalf of all others similarly suited, v. Cree Inc.*, Civil Action No. 4:17-cv-06252-YGR, United States District Court, Northern District of California, San Francisco Division, April 30, 2018.

**Expert Reports**

Expert Report of Stefan Boedeker In Support of Plaintiff's Motion for Class Certification, *Jeff Young, individually and on behalf of all others similarly suited, v. Cree Inc.*, Civil Action No. 4:17-cv-06252-YGR, United States District Court, Northern District of California, San Francisco Division, January 18, 2019, and available backup.

**Depositions**

Deposition of Stefan Boedeker, *Jeff Young, individually and on behalf of all others similarly suited, v. Cree Inc.*, Civil Action No. 4:17-cv-06252-YGR, United States District Court, Northern District of California, Oakland Division, March 12, 2019.

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